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ABSTRACT

This paper reviews the policy context of school retention and shows that age-grade retardation has been common and growing in American schools from the 1970s-90s. The paper focuses on the period from 1972-98 and on grade retardation at ages 6, 9, 12, 15, and 17 years. By age 9 years, the odds of grade-retardation among African American and Hispanic youth are 50 percent larger than they are among white youth, but these differentials are almost entirely explained by social and economic deprivation among minority youth, along with unfavorable geographic location. Because rates of age-grade retardation have increased at the same time that social background conditions have become more favorable to rapid progress through school, the observed trend toward more age-grade retardation substantially understates growth in the practice of holding students back in school. While there is presently little evidence of direct racial-ethnic discrimination in progress through the elementary and secondary grades, the recent movement toward high stakes testing for promotion could magnify racial-ethic differentials in retention. (Contains 45 references.) (SM)

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Race-Ethnicity, Social Background, and Grade Retention

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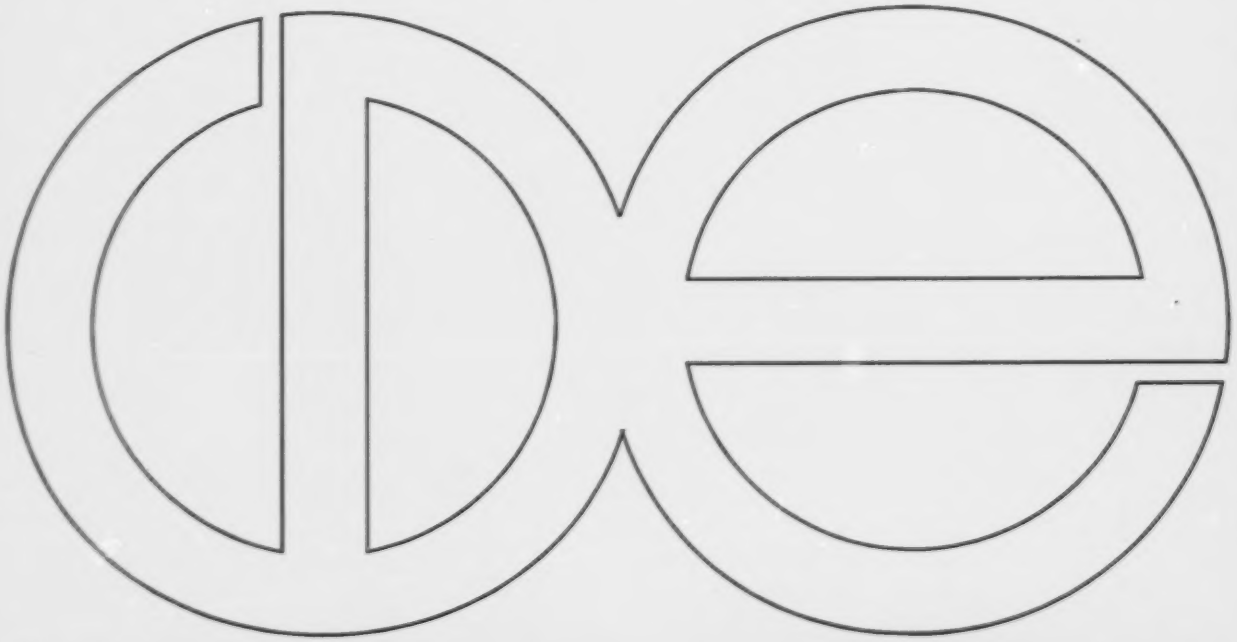

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RACE-ETHNICITY, SOCIAL BACKGROUND, AND GRADE RETENTION[1]

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RACE-ETHNICITY, SOCIAL BACKGROUND, AND GRADE RETENTION

Robert M. Hauser, Devah I. Pager, and Solon J. Simmons

ABSTRACT

Despite the visible popularity of policies "to end social promotion," little is known about the prevalence of grade retention in American schools or about the effects of race-ethnicity and other social and economic background characteristics on retention. We review the policy context of school retention and show that age-grade retardation has been common and growing in American schools from the 1970s through the 1990s. Our analysis focuses on the period from 1972 to 1998 and on grade retardation at ages 6, 9, 12, 15, and 17. By age 9, the odds of grade-retardation among African-American and Hispanic youth are 50 percent larger than among White youth, but these differentials are almost entirely explained by social and economic deprivation among minority youth, along with unfavorable geographic location. Because rates of age-grade retardation have increased at the same time that social background conditions have become more favorable to rapid progress through school, the observed trend toward more age-grade retardation substantially understates growth in the practice of holding students back in school. While there is presently little evidence of direct race-ethnic discrimination in progress through the elementary and secondary grades, the recent movement toward high stakes testing for promotion could magnify race-ethnic differentials in retention.

Recent proposals for test-based grade promotion and retention are based on politically attractive, but scientifically unsupported claims about the benefits of retention, and minority students are more likely to be subject to them. Sound bites about "ending social promotion" are appealing to politicians and to the general public. Sound data about rates, trends, and differentials in grade retention are scarce, and current retention rates are much higher than is generally believed. In this paper, we review recent developments in retention policy and national trends in age-grade relationships in elementary and secondary school. Then we report new analyses of race-ethnic differentials in grade retention in the context of group differences in social and economic background.

At least 15 percent of pupils are retained between ages 6 to 8 and ages 15 to 17, and a large share of retention occurs either before or after those ages (National Research Council, 1999; Hauser, 1999). Retention rates are much higher for boys and members of minority groups than for girls or the White majority. Retention rates have also grown substantially over the past two decades.

The scientific evidence about the effects of retention in grade is strong and clear: The academic benefits of retention typically are both ephemeral and costly (Holmes, 1989; Hauser, 1999). When previous academic performance and relevant social characteristics are controlled, past grade retention accelerates current school dropout (Rumberger and Larson, 1998). There is no evidence for claims that new retention policies will be coupled with effective remediation of learning deficits that would be worth their cost or would offset the well-established long-term negative effects of retention (Hauser, 1999; Roderick, et al., 1999; Moore, 1999).

The typical organization of American schools into grades by the ages of their students is challenged by large variations in achievement within ages and grades. The resulting tension is

reduced somewhat by overlap in the curriculum from one grade to the next. It is also reduced by strategies for grouping students by observed levels of aptitude or mastery: These include special education placement, academic tracking, extended kindergarten, and grade retention. The age at entry into graded school has gradually crept upward since the early 1970s, reversing one of the major historic trends contributing to the growth of schooling in the United States. Data on early school transitions and on the possible reasons for change in those transitions are grossly inadequate, but it would appear that retention in pre-kindergarten and kindergarten has played some role in the rise of age at entry into the first grade. Excepting the ubiquitous tendency for girls to enter (and complete) primary and secondary school at earlier ages than boys, there is little sign of social differentiation in age at school entry.

Socially differentiated patterns of grade retention develop rapidly after entry into graded school, and they persist through secondary school. White girls progress through school most rapidly, while African-American boys are most often held back in grade. By ages 15 to 17, about 30 percent of White girls, but close to half of African-American boys are below the modal grade for all students of their age—or have left school. Rates of grade retardation at those ages have remained high, even though school dropout has declined.

Given the high rates of retention created by current evaluation practices—and their disparate impact on minority youth—the possibility of substantially increased, test-based retention creates a number of concerns. For example, the costs of grade repetition are large—both to those retained and those who must pay for repeated schooling. The presence of older students creates serious management problems for schools. Most important, the available evidence shows that retention has no lasting educational benefits, that it typically leads to lower

achievement (than promotion) and to higher rates of school dropout.

It is possible to imagine an educational system in which test-based promotion standards are combined with effective diagnosis and remediation of learning problems, yet past experience suggests that American school systems may not have either the will or the means to enact such fair and effective practices. Such a system would include well-designed and carefully aligned curricular standards, performance standards, and assessments. Teachers would be well trained to meet high standards in their classrooms, and students would have ample notice of what they are expected to know and be able to do. Students with learning difficulties would be identified years in advance of high-stakes deadlines, and they and their parents and teachers would have ample opportunities to catch up before deadlines occur. Accountability for student performance would not rest solely or even primarily on individual students, but also, collectively, on educators and parents. There is no positive example of such a system in the United States, past or present, whose success is documented by credible research.

While the disproportionate rates of grade retention among minorities are both large and of long standing (U.S. Bureau of the Census, 1979; National Research Council, 1999; Hauser, 1999), relatively little research has focused on the role that socioeconomic and family differences between population groups play in accounting for those differences. At the national level, one can look back only to a few simple tabulations from the 1976 Survey of Income and Education (U.S. Bureau of the Census, 1979) and to an exploratory – but exemplary analysis of family background and age-grade retardation in the October Current Population Survey of 1979 (Bianchi, 1984). Both of these analyses suggest that social and economic background, rather than minority status *per se*, accounts for a large share of group differences in retention.

In this paper, we report analyses of race-ethnic differences in age-grade retardation among 6, 9, 12, 15, and 17 year-olds, using data from October Current Population Surveys from 1972 to 1998. These ages span the period between normative entry to graded school and the later years of high school, but do not extend to ages where a substantial minority of youth no longer live in parental or quasi-parental households.[2] At these ages, the modal October grade levels are 1, 4, 7, 10, and 12. By looking at several ages, we observe typical developmental patterns of retention and of differentials in retention. As Hauser (1999) has shown, the gender differential in retention occurs as early as kindergarten, but socioeconomic differentials develop after entry to graded school. By combining data from 27 annual surveys, we identify trends in retention practices across three decades.

From 1972 to 1998, the October CPS data files include between 57,500 and 63,500 cases at each age. For example, at age 17–the age at which the number of observations is smallest–there are 43,900 non-Hispanic whites, 7700 African-Americans, 3900 Hispanics, and 1900 youth in other race-ethnic groups. The data are drawn from the Uniform October Current Population Survey file, 1968–1990 (Hauser, et al., 1993; Hauser and Hauser, 1993), which we have supplemented with new data for 1991 to 1998. The file attaches characteristics of households and of householders to demographic characteristics and enrollment data for school-age youth. For each youth in the sample, we know sex, race-ethnicity, enrollment status, grade level, region of residence, and metropolitan location.[3] The analysis is restricted to

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[2] As explained below, our data are limited to dependent children and youth living in parental or quasi-parental households.

[3] Except at age 17, a very small fraction of the sample is not enrolled in school. Regardless of age, those individuals are classified as below the modal grade level for their age. That is, school

dependents–those who are a child or other relative of the householder and are not a householder or spouse of a householder. We have linked several relevant social and economic characteristics of the household and householders to each child or youth's record: family income, number of children in the household, single-parent household, education of household head and of spouse of head, head or spouse without an occupation, occupation of household head and of spouse of head, and housing tenure.

SOCIAL PROMOTION, RETENTION, AND TESTING

Much of the current public discussion of high-stakes testing of individual students centers on calls for "an end to social promotion." In a memorandum to the secretary of education, President Clinton (1998: 1-2) wrote that he had "repeatedly challenged States and school districts to end social promotions--to require students to meet rigorous academic standards at key transition points in their schooling career, and to end the practice of promoting students without regard to how much they have learned . . . . Students should not be promoted past the fourth grade if they cannot read independently and well, and should not enter high school without a solid foundation in math. They should get the help they need to meet the standards before moving on." In his 1999 State of the Union address, the President reiterated the proposal – to sustained applause – by calling for legislation to withhold federal education funds from school districts practicing social promotion. As recently as October 1999, President Clinton told a "summit" meeting of political and business leaders, "that students who are held back because they fail to vault newly raised bars should be treated with tough love. … 'look dead in the eye

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dropout is treated here as a form of age-grade retardation.

some child who has been held back' and say, 'This doesn't mean there's something wrong with you, but we'll be hurting you worse if we tell you you're learning something when you're not.' " (Steinberg, 1999).

The administration's proposals for educational reform strongly tie the ending of social promotion to early identification and remediation of learning problems. The president calls for smaller classes, well-prepared teachers, specific grade-by-grade standards, challenging curriculum, early identification of students who need help, after-school and summer school programs, and school accountability. He also calls for "appropriate use of tests and other indicators of academic performance in determining whether students should be promoted" (Clinton, 1998: 3). The key questions are whether testing will be used appropriately in such decisions and whether early identification and remediation of learning problems will take place successfully.

Test-based requirements for promotion are not just being proposed; they are being implemented. According to a report by the American Federation of Teachers (1997), 46 states either have or are in the process of developing assessments aligned with their content standards. Seven of these states, up from four in 1996, require schools and districts to use the state standards and assessments in determining whether students should be promoted into certain grades.[4]

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[4] The states are Arkansas, Florida, Louisiana, New Mexico, North Carolina, South Carolina, and West Virginia. A report from the Council of Chief State School Officers (1998) lists five states with required testing for promotion: Louisiana, North Carolina, New York, South Carolina, and Virginia.

For some years, Iowa and California had taken strong positions against grade retention, based on research or on the reported success of alternative intervention programs (George, 1993; Iowa Department of Education, et al., 1998). But California's past policies have been repudiated by the new governor, Gray Davis, who has promoted a legislative package that mandates test-based grade retention in elementary and secondary schools.

Governor Bush of Texas has proposed that "3rd graders who do not pass the reading portion of the Texas Assessment of Academic Skills would be required to receive help before moving to regular classrooms in the 4th grade. The same would hold true for 5th graders who failed to pass reading and math exams and 8th graders who did not pass tests in reading, math, and writing. The state would provide funding for locally developed intervention programs" (Johnston, 1998). Texas is exceptional among states in its regular reports of retention rates by grade level and race-ethnicity. Even in the absence of test-based retention, these rates are high, especially among African-American and Hispanic youth. Retention rates have been stable and high from 1990 onward, well before the new initiatives to "end social promotion." For example, if all Texas students were subject to the failure rates of 1996-97, 17 percent would fail at least once between the 1st and 8th grades, and 32 percent would fail at least once between the 9th grade and high school completion (Texas Education Agency, 1998). Among African American students, the corresponding rates are 20 percent and 42 percent, and among Hispanic students they are 21 percent and 44 percent.[5]

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[5] To estimate these rates, we multiplied the complements of the reported failure rates across grade levels to estimate the probability of never being failed. The complement of that estimate is the probability of having failed at least once.

In 1998 New York City Public School Chancellor Rudy Crew proposed that 4th and 7th graders be held back if they fail a new state reading test at their grade level, beginning in spring 2000. Crew's proposal initially combined testing of students with "a comprehensive evaluation of their course work and a review of their attendance records." A two-year delay in implementation of the tests would permit schools "to identify those students deemed most at risk and give them intensive remedial instruction" (Steinberg, 1998a). However, late in the spring of 1999, under intense political pressure, Crew abandoned established policies and ordered thousands of third and sixth graders who had performed poorly on a new reading test to attend summer school and pass a new test at summer's end or be held back a year. The New York Public Schools were promptly sued for violating their own rules (Archibold, 1999a; New York Times, 1999). The inappropriate reliance on a single test performance came back to haunt the Crew administration when it turned out that the test was improperly normed, and thousands of students had been failed when they should have passed (Hartocollis, 1999; Archibold, 1999b).

In 1996-1997 the Chicago Public Schools instituted a new program to end social promotion. Retention decisions are now based almost entirely on student performance on the Iowa Test of Basic Skills (ITBS) at the end of grades 3, 6, and 8. Students who fall below specific cutoff scores at each grade level are required to attend highly structured summer school programs and to take an alternative form of the test at summer's end.[6] At the end of the 1996-

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[6] The *1997-1998 Guidelines for Promotion in the Chicago Public Schools* also list minimum report card requirements and a minimum attendance requirement, but "students who score at or above grade level on both the Reading and Mathematics sections of the ITBS are excepted from the latter requirement" (Chicago Public Schools, 1997a). This use of the ITBS appears to be in conflict with the publisher's recommendations about "inappropriate purposes" of testing: "If a retention decision is to be made, classroom assessment data gathered by the teacher over a period of months is likely to be a highly relevant and accurate basis for making such a decision. A test

1997 school year, it was initially reported that 32 percent, 31 percent, and 21 percent of students failed the initial examination at grades 3, 6, and 8, respectively. Out of 91,000 students tested overall, almost 26,000 failed. After summer school, it was reported that 15 percent, 13 percent, and 8 percent of students were retained at the three grade levels (Chicago Public Schools, 1998a).[7]

Recent reports on Chicago's retention policy provide an even less sanguine picture. For example, among 3rd graders, 30.5 percent were excluded from testing because they were in special education or were bilingual students. Of the remainder, 48.7 percent failed the spring 1997 exam. Of those who failed and remained in the public schools, 33.0 percent passed the ITBS at summer's end and were promoted, 21.2 percent failed and were promoted anyway, and 40.8 percent failed and were retained for a second year in the 3rd grade. In the next year, the test score gain among students who were retained was indistinguishable from that among students who had failed the summer test and been promoted; moreover, fewer than half of the retained students passed the ITBS after the retention year or the following summer (of 1998) (Roderick, et al., 1999: 12-13). Data from the Chicago Public Schools show that "African American students were 4.5 times more likely to be retained than White students in 1997. And Latino students were nearly three times more likely to be retained than White students in 1997" (Moore, 1999: 3).

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score can make a valuable contribution to the array of evidence that should be considered. However, a test score from an achievement battery should not be used alone in making such a significant decision" (Hoover, et al., 1994). However, the test publisher (but not the developers) have endorsed this use of the ITBS by the Chicago Public Schools.

[7] The initial report was that between 2 and 3 percent of students failed the initial exam at each grade level but were ultimately "waived" into the next grade, but in fact waivers were frequent (Moore, 1999).

The current enthusiasm for the use of achievement tests to end social promotion raises several concerns. First, much of the public discussion and some recently implemented or proposed testing programs appear to ignore existing professional and scientific standards for appropriate test use (National Research Council, 1999; American Educational Research Association, 1999). These standards have been adopted in large part in the current draft of the Department of Education's legal guidance for making high stakes decisions about students (U.S. Department of Education, 2000).

Second, there is persuasive research evidence that grade retention typically has no beneficial academic or social effects on students.[8] The past failures of grade retention policies need not be repeated. But they provide a cautionary lesson: Making grade retention–or the threat of retention–a fair and effective educational policy requires consistent and sustained effort.

Third, public discussion of social promotion has made little reference to current retention practices–in which a very large share of American schoolchildren are already retained in grade. In part, this is because of sporadic data collection and reporting, but far more consistent statistical data are available about the practice of grade retention than, say, about academic tracking. It is possible to describe rates, trends, and differentials in grade retention using data from the U.S. Bureau of the Census, but these data have not been used fully to inform the public debate.

Fourth, available data suggest that retention has a disparate impact on minority youth. At present, retention based on test-scores alone is rare, but new and proposed policies in several

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[8] The failure of past programs is recognized in President Clinton's initiative to end social promotion: "Ending social promotions by simply holding more students back is the wrong choice. Students who are required to repeat a year are more likely to eventually drop out, and rarely catch up academically with their peers. The right way is to ensure that more students are prepared to meet challenging academic standards in the first place" (Clinton, 1998).

states and localities focus on achievement test scores as a sole or limiting factor in promotion decisions. Not only are achievement test scores notably lower in minority than in majority populations, but most of the test score gap is not explained by group differences in social or economic background. Thus, one might well expect race-ethnic differentials in retention to increase as achievement tests become the main or sole criterion for promotion. For this reason, especially, we think it is useful to provide baseline estimates of differential retention among minority youth and of the role of social and economic background in those differentials.

TRENDS AND DIFFERENTIALS IN GRADE RETENTION

No federal or independent agency monitors social promotion and grade retention. We doubt that governments currently make important policy decisions about any other social process with so little in the way of sound, basic, descriptive information. Occasional data on retention are available for some states and localities, but coverage is sparse, and little is known about the comparability of these data (Shepard and Smith, 1989; National Research Council, 1999; Hauser, 1999). For example, the denominators of retention rates may be based on beginning-of-year or end-of-year enrollment figures. The numerators may include retention as of the end of an academic year or as of the end of the following summer session. Some states include special education students in the data; others exclude them. In the primary grades, retention is usually an all-or-nothing matter; in high school, retention may imply that a student has completed some requirements but has too few credits to be promoted. Some states do not collect retention data at all, or collect very limited data.

The main federal source of information about education, The National Center for Education Statistics, provides essentially no statistics about grade retention or social promotion. For example, there are no data on this subject in current editions of its two major statistical compendia, the *Digest of Education Statistics* (National Center for Education Statistics, 1999a; National Center for Education Statistics, 2000a) and the *Condition of Education* (National Center for Education Statistics, 1999b; National Center for Education Statistics, 2000b). One recent special report on educational equity for women offers a single table, based on October Current Population Surveys in 1992 and 1995, which shows that girls are less likely than boys to be retained in grade (National Center for Education Statistics, 2000c: 40).

The best current source of information on national levels, trends, and differentials in grade retention is the Current Population Survey (CPS) of the U.S. Bureau of the Census. Using published data from the annual October School Enrollment Supplement of the CPS, it is possible to track the distribution of school enrollment by age and grade each year for groups defined by sex and race/ethnicity. These data have the advantage of comparable national coverage from year to year, but they say nothing directly about educational transitions or about the role of high-stakes testing in grade retention. We can only infer the minimum rate of grade retention by observing changes in the enrollment of children below the modal grade level for their age from one calendar year to the next. Suppose, for example, that 10 percent of 6-year-old children were enrolled below the 1st grade in October of 1994. If 15 percent of those children were enrolled below the 2nd grade in October of 1995, when they were 7 years old, we would infer that at least 5 percent were held back in the 1st grade between 1994 and 1995.

One egregious exception to the lack of federal information about grade retention and

promotion is an Education Department publication, *Taking Responsibility for Ending Social Promotion: A Guide for Educators and State and Local Leaders* (U.S. Department of Education, 1999). While it also cites more reputable estimates of grade retention, the *Guide* features a "conservative" estimate from "1996 Current Population Statistics" that "only about 3 percent of students are two or more years over age for their grade (an indication that they have been retained at least once)" (p. 6).[9] This estimate is indefensibly low for three reasons. First, it covers only currently enrolled students, ignoring persons of normal school age who have fallen behind and dropped out. Second, by referring to K-12 students at all grade levels, it aggregates data for children in the primary grades, who have had few years at risk of retention, with data for children in higher grades, who have had many years at risk of retention. Third, by counting as "retained" only those students who are two or more years above the modal age for their grade, the *Guide* fails to include a large number of retained students. We cannot think of any rationale for this statistic, other than an effort to mislead the public about the true extent of grade retention.

Retention in the Primary and Secondary Grades

Age-grade retardation refers to enrollment below the modal grade level for a child's age (and no broader meaning is either intended or implied). We have examined national rates of age-grade retardation by age, sex, and race ethnicity for three-year age groups at ages 6 to 17 from 1971 to 1998. We have organized the data by birth cohort (year of birth), rather than by calendar

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[9] There is no such publication as "Current Population Statistics." Apparently, the reference is *to Current Population Reports*, Series P-20, No. 500, which reports school enrollment by age in October 1996. However, we cannot reproduce exactly the estimates reported in the *Guide*, and the Department of Education has not responded to our request for their source.

year, so it is possible to see the evolution of age-grade retardation throughout the schooling of a birth cohort, as well as changes in age-grade retardation rates from year to year.[10]

The recent history of age-grade retardation is summarized in Figure 1. It shows age-grade retardation at ages 6 to 8, 9 to 11, 12 to 14, and 15 to 17 among children who reached ages 6 to 8 between 1962 and 1998. The horizontal axis shows the year in which an age group reached ages 6 to 8, so vertical comparisons among the trend lines at a given year show how age-grade retardation cumulated as a birth cohort grew older.

For example, consider children who were 6 to 8 years old in 1989 – the most recent cohort whose history can be traced all the way from ages 6 to 8 up through ages 15 to 17. At ages 6 to 8, 21.4 percent were enrolled below the modal grade for their age. By 1992, when this cohort reached ages 9 to 11, age-grade retardation grew to 28.2 percent, and it was 30.8 percent in 1995, when the cohort reached ages 12 to 14. By 1998, when the cohort reached ages 15 to 17, 35.7 percent were either below the modal grade level or had left school. Almost all of the growth in retardation after ages 12 to 14, however, was due to dropout (3.8 percent), rather than grade retention among the enrolled.

One could read the rate of enrollment below the modal grade at ages 6 to 8 as a baseline measure, that is, as if it did not necessarily indicate that grade retention had taken place. Relative to that baseline, increases in enrollment below the modal grade at older ages clearly show the net effects of retention in grade. This reading of the data would suggest that, in most birth cohorts, retention occurs mainly between ages to 6 to 8 and 9 to 11 or between ages 12 to 14 and 15 to

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[10] These data have been assembled from Historical Statistics, Table A-3, "The Population 6 to 17 Years Old Enrolled Below Modal Grade: 1971 to 1998," which is available from the U.S. Bureau of the Census at http://www.census.gov/population/socdemo/school/taba-3.txt.

17.[11] This way of looking at the data surely understates the prevalence of grade retention, for much of it occurs within or below ages 6 to 8.

The series for ages 15 to 17 includes early school dropout, which is also shown as a separate series along the bottom of the figure. Dropout, rather than retention, evidently accounts for a substantial share of the increase in age-grade retardation between ages 12 to 14 and ages 15 to 17.

The trend in age-grade retardation at ages 6 to 8, 9 to 11, 12 to 14, and 15 to 17 can be read across Figure 1 from left to right. Age-grade retardation increased in every age group from cohorts of the early 1970s through those of the middle to late 1980s. Age-grade retardation increased at ages 15 to 17 after the mid-1970s despite a slow decline in its early school dropout component throughout the period. That is, grade retention increased while dropout decreased. Peak rates occurred earlier at older than at younger ages, suggesting that policy changes occurred in specific calendar years, rather than consistently throughout the life of successive birth cohorts. Among cohorts entering school after 1970, the percentage enrolled below the modal grade level was never less than 10 percent at ages 6 to 8, and it exceeded 20 percent for cohorts of the late 1980s. The trend-lines suggest that age-grade retardation has declined slightly for cohorts entering school after the mid-1980s, but rates have not approached the much lower levels of the early 1970s.

Overall, a large share of each birth cohort now experiences grade retention during elementary school. Among children aged 6 to 8 from 1982 to 1994, age-grade retardation has

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[11] We ignore the logical possibility that age-retardation at younger ages could be counter-balanced by double-promotion at older ages.

reached 25 to 30 percent by ages 9 to 11.

Social Differences in Retention

While there are similarities in the age pattern of grade retardation among major population groups—boys and girls and majority and minority groups—there are also substantial differences in rates of grade retardation among them, many of which develop well after school entry. The gender differential gradually increases with age from 5 percentage points at ages 6 to 8 to 10 percentage points at ages 15 to 17. That is, boys are initially more likely than girls to be placed below the modal grade for their age, and they fall further behind girls as they pass through childhood and adolescence (Hauser, 1999).

The differentiation of age-grade relationships by race and ethnicity is even more striking than that by gender. Figures 2 and 3 show trends in the development of age-grade retardation by race/ethnicity in each of two age groups: 6 to 8 years old and 15 to 17 years old. Here, unlike the case of gender differentiation, the rates of age-grade retardation are very similar among Whites, Blacks, and Hispanics at ages 6 to 8. However, by ages 9 to 11, the percentages enrolled below modal grade levels are typically 5 to 10 percentage points higher among Blacks or Hispanics than among Whites. The differentials continue to grow with age, and at ages 15 to 17, rates of grade retardation range from 40 to 50 percent among Blacks and Hispanics, while they have gradually drifted up from 25 percent to 35 percent among Whites. By ages 15 to 17, there is a differential between Hispanics and Blacks, favoring the latter, and this appears to follow from high rates of early school dropout among Hispanics. There is almost no difference in the dropout rates

between Whites and Blacks,[12] but Hispanics are much more likely to leave school at an early age. Thus, early high school dropout contributes very little to the observed difference in age-grade retardation between Blacks and Whites, which is mainly due to retention in grade. Early dropout does account in part for the difference in age-grade retardation between Hispanics and Whites or Blacks.

In recent years, gender and race-ethnic differentials in age-grade retardation, even at young ages, are a consequence of school experience and not primarily of differentials in age at school entry. Social differentials in age-grade relationships are vague at school entry, but a hierarchy is clearly established by age 9, and it persists and grows through the end of secondary schooling. This growth can only be explained by grade-retention. By age 9, there are sharp social differentials in age-grade retardation, favoring Whites and girls relative to Blacks or Hispanics and boys. By ages 15 to 17, close to 50 percent of Black males have fallen behind in school—30 percentage points more than at ages 6 to 8—but age-grade retardation has never exceeded 30 percent among White girls of the same age. If these rates and differentials in age-grade retardation are characteristic of a schooling regime in which social promotion is perceived to be the norm, it is cautionary to imagine what we might observe when that norm has been eliminated.

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[12] Dropout by ages 15 to 17 does not indicate ultimate rates of failure to complete high school because large numbers of youth complete regular schooling through age 19 or, alternatively, pass the GED exam through their late 20s (Hauser, 1997).

RACE-ETHNICITY, SOCIAL BACKGROUND, AND AGE-GRADE RETARDATION

In order to analyze differentials and trends in age-grade retardation in more detail, we have carried out logistic regression analyses of enrollment below modal grade level vs. enrollment at or above modal grade level. For example, Table 1 shows the gross and net effects of race-ethnicity, gender, geographic location, socioeconomic background, and year on age-grade retardation at age 6. The first panel shows the gross effects of each variable. That is, each set of categories or each variable was entered separately. The second panel shows the net effects–estimated by entering all variables at once. Within each panel, we report coefficients (estimated effects on log-odds), standard errors of the coefficients, and the exponentiated value of the coefficient. The latter estimate gives the proportional effect of the variable on the odds of enrollment below the modal grade level. In these initial models, all effects–except the additive effects of calendar year–are specified to be constant across time. Thus, none of them pertains to a specific population and year, but rather to what has been typical across the 27 year span of the enrollment surveys. Of course, there may have been significant variation in the effects across time, and those variations are also worth investigating.

Age Six

At age 6, many of the effects of social and economic background characteristics are small, while others are opposite in direction from what one might expect. Mainly, this reflects the lack of social differentiation at school entry. One strong and expected effect is that of gender: The odds of boys enrollment below the first grade are 40 percent higher than those of girls. At age 6, African-Americans are less likely than other race-ethnic groups to be enrolled below the first grade, and age-grade retardation is significantly less in the central cities of major

metropolitan areas than in other categories of metropolitan status–suburbs of large cities, small central cities or their suburbs, non-metropolitan areas, or other areas that are not identifiable in the CPS data. Further, age-grade retardation is less in the East than in other Census regions, while children in the South have lower odds of retardation than those in other regions. These differentials are notable mainly because they provide a baseline for comparisons with those at older ages that suggest the cumulation of social and economic effects on grade retention.

Figure 4a shows two trend lines based on the effects of calendar year that are reported in Table 4. The trends are reported in multiplicative form, that is, using the exponentiated estimates of the effects of years on age-grade retardation. In each series, we arbitrarily set the value for 1972 at 1.00, so the series show relative changes in the odds of retardation relative to that year. The *unadjusted* series shows the gross effects in Table 4, while the *adjusted* series shows the net effects. Two findings are notable. First, in both series, there was a dramatic increase in age at school entry from 1974 to the late 1980s. The odds that a six year old child was enrolled below the first grade (or not enrolled at all) were at least 3 times larger after the late 1980s than in the mid 1970s. This trend reflects the standardization of later ages of school entry in state law, the practice of retaining students in kindergarten, and parental "redshirting" of their children (Shepard and Smith, 1989). Second, while the unadjusted and adjusted series are virtually identical through the mid 1980s, the adjusted series is higher thereafter. The implication of this gradual divergence is that the social background characteristics of 6 year-olds have improved, in the sense that they should imply reduced rates of age-grade retardation. Thus, net of social background, the tendency toward later school entry–as displayed in the adjusted series–has increased even more than the observed rates of age-grade retardation. Finally, from 1990 to

1995, there was a regular decline in age-grade retardation among six year-olds, but that decline was reversed in 1996 to 1998.

Age Nine

As shown in Table 2, by age 9, the typical, gross differentials between age-grade retardation of whites and of minority children is well-established. African-American and Hispanic children are almost 50 percent *more* likely to be enrolled below grade 4 than are whites. Among African-Americans, in three years the contrast reverses–from almost a 50 percent advantage to almost a 50 percent disadvantage. By age 9, the contrast between central cities and their suburbs also shifts in direction. Age-grade retardation is greater in central cities, large or small, than in their suburbs. Also, the South becomes the region with the highest level of age-grade retardation. Finally, effects of social and economic background become much larger at age 9. A one percent increase in family income is associated with a 0.4 percent decrease in age-grade retardation.[13] Home ownership (as contrasted with renting) reduces age-grade retardation by 35 percent, and a non-intact (single-parent) family increases it by 38 percent. There are corresponding effects of parental educational attainment, occupational status, and number of children in the household.

As shown in the panel of net effects, the coefficients of the socioeconomic variables are reduced, but are still highly significant in the full equation. However, inclusion of the social and economic background variables substantially changes the coefficients of race-ethnicity, metropolitan status, and region. Even with many thousands of observations, African-American and Hispanic nine year-olds are not significantly more age-grade retarded than whites, once one

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[13] Because family income is expressed in natural logs, its effect can be described as an elasticity.

has taken account of their disadvantaged social and economic background. Similarly, net of social background, age-grade retardation is significantly less in major central cities than in other areas (excepting the suburbs of major central cities). Retention and promotion practices must account for the changing differentials between ages six and nine, but the disparate impact of those practices on minority children are fully explained by their disadvantaged origins.

Figure 4b shows the unadjusted and adjusted trend lines in enrollment below the fourth grade at age nine. In this figure (and in Figures 4c to 4e), the vertical scale is expanded, so it is not visually comparable to Figure 4a. That is, the relative increase in age-grade retardation has been larger at age six than at later ages. However, there has still been a secular increase in the odds of retention, beginning after 1976. Observed odds of retention had increased by 50 percent or more between 1986 and 1992. Moreover, the disparity between the observed and adjusted series is more prominent here than among six year-olds. After adjustment for social background and geographic location, the observed odds of age-grade retardation were 42 percent greater in 1998 than in 1972, but the adjusted odds were 80 percent greater in 1998 than in 1972. The primary source of the difference between the observed and adjusted series has been increases in the educational attainments of parents and decreases in the number of children in the home. These effects were muted among six year-olds because the effects of social background were less at that age.

Ages Twelve, Fifteen, and Seventeen

Our findings at ages 12, 15, and 17, with respect to enrollment below the modal grades of 7, 10, and 12, mirror those at age 9 in comparison with those at age 6 (See Tables 3, 4, and 5). At each successive age, gross race-ethnic differentials become larger, the effects of

socioeconomic background variables increase, central cities become notably more likely to have overage students than suburbs, and regional differences between the South and all other regions become sharper. For example, at age 12, the odds of age-grade retardation are 69 percent greater among African-Americans than among whites, and they are 79 percent greater among Hispanics than among whites. At age 15, the odds of age-grade retardation are 90 percent greater among African-Americans than among whites, and they are 220 percent greater among Hispanics than among whites. By age 17, the odds of age-grade retardation are 240 percent greater among African-Americans than among whites, and they are 266 percent greater among Hispanics than among whites.

At age 12, the elasticity of age-grade retardation with respect to family income is 0.49, but at age 15 it is 0.57, and at age 17, it is 0.66. At age 12, home ownership is associated with a 48 percent reduction in the odds of age-grade retardation, but at age 15 the reduction is 54 percent, and at age 17 it is 61 percent. This variable would appear to be a proxy, both for family wealth and for residential stability, and its effects are impressively large. At age 12, a single parent household is associated with a 51 percent increase in the odds of age-grade retardation, but at age 15 the increase is 69 percent, and at age 17 it is 88 percent.

In major metropolitan areas, at age 12, the odds of age-grade retardation in suburbs are 62 percent as large as in their central cities; at age 15, the odds in suburbs are 48 percent as large as in central cities, and at age 17, the odds are 41 percent as large in suburbs as in central cities. These differentials are, of course, reduced when socioeconomic background is controlled. In fact, at age 12, as at age 9, there is no significant differential between age-grade retardation in large central cities and their suburbs once all other variables are controlled. However, by age 15

the net effect of suburban residence is a 22 percent reduction in the odds of age-grade retardation, and at age 17 the net effect of suburban residence is a 27 percent reduction.

At age 12, as at age 9, the overall chances of age-grade retardation are greater in the Midwest and South than in the East or West, by 21 percent and 49 percent. These differentials persist after other variables are controlled: 23 percent in the Midwest and 24 percent in the South. However, at ages 15 and 17, only the South has substantially higher odds of age-grade retardation than other regions–by 54 percent (relative to the East) at age 15 and by 42 percent at age 17. Again, the Southern regional differential persists after other variables are controlled.

At ages 12 and 15, as at younger ages, the race-ethnic differentials in age-grade retardation are fully explained by geographic location and socioeconomic background. In the present models, there are no significant effects of race-ethnicity after other variables are controlled. However, at age 17, although most of the very large race-ethnic differential is explained by the other variables in the model, there remain modestly larger odds of age-grade retardation among minorities. Recall that the odds of age-grade retardation among African-Americans were 238 percent higher than among whites at age 17, while the odds among Hispanics were 266 percent higher. In addition, the odds of retardation among youth of other race-ethnicity were 67 percent higher than among whites. After controlling other geographic and socioeconomic variables, the odds of age-grade retardation in each of the race-ethnic groups were significantly higher than among whites by about 10 percent. Compared to the gross differentials, these effects are small, but neither are they trivial.

The observed and adjusted trend lines in enrollment below the modal grade level are similar at ages 12, 15, and 17 to what we have already observed at age 9 (See Figures 4c, 4d, and

4e.) That is, there has been an increase in the odds of age-grade retardation over most of the period after the mid-1970s, and the adjusted trend line is steeper than the observed trend line. Changes in the social composition of successive cohorts of children should have reduced the odds of age-grade retardation, but in fact there were increased chances of enrollment below the modal grade level.

DIFFERENTIAL TRENDS BY RACE-ETHNICITY

Trends in enrollment below the modal grade level need not have been the same for all population groups. In fact, the possibility of differential trends–adverse to minority groups–is one of the perceived threats of high stakes testing regimes. For that reason we looked for differential trends in age-grade retardation by interacting race-ethnicity with calendar year in our model of geographic and socioeconomic effects on enrollment level.[14] These findings are shown in Figures 5a to 5e for the five age groups. Because the samples of minority populations are relatively small, we have graphed three-year moving averages, rather than annual estimates.

The trends are rather different for white, African-Americans, and Hispanics at age 6, but they become more similar at older ages. The trend lines for whites are much like those reported earlier for the total population. The trends are less regular among Hispanics, and there is some indication of declining age-grade retardation in recent years. The trends among African-Americans roughly follow those among whites. One striking finding is that, in recent years enrollment below the modal grade level has been consistently higher among whites than in minority populations, once social and economic background has been controlled. The crossover

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[14] Note that these analyses do not permit effects of geographic or socioeconomic origin to vary across race-ethnic groups. We plan to report these analyses later.

points vary systematically by age. At age six, the crossover is around 1984; at age nine, it is around 1988; at ages 12 and 15, it is around 1989 or 1990; at age 17, the crossover is complete around 1993. The pacing of this change suggests that net race-ethnic differentials–one might call them refined measures of discrimination–have declined in rough synchrony with the passage of successive cohorts through the educational process.

RACE-ETHNICITY VS. GEOGRAPHY

To this point, our analysis has not separated the effects of geographic location from those of socioeconomic status as explanations of race-ethnic differentials in enrollment below the modal grade level. One argument has been that some local areas have stringent promotion requirements precisely because students in those areas are poor or members of minority groups. In that instance, we would expect geographic location to account for a large share of the observed race-ethnic differentials in age-grade retardation, even without controlling the effects of socioeconomic variables. Table 6 reports coefficients of race-ethnicity in a series of nested models that bear on this issue. In the first vertical panel, the model includes only gender and year. The estimates in the second panel are based on a model including gender, year, metropolitan status, and region. The third panel reports estimates from the full model–those that appear at the right-hand side of Tables 1 to 5. The findings in Table 6 provide very little support for the theory that geographic location accounts for race-ethnic differentials. In fact, at ages 6 and 9, the coefficients for African-Americans and Hispanics are larger after than before geographic location has been controlled, and the coefficients for Hispanics are also larger at ages 12 and 16 after geographic location is controlled. Only among African-Americans at ages 12 to

17 are there modest reductions in age-grade retardation relative to whites when geographic location is controlled. On the other hand, the effects of race-ethnicity fall dramatically when the socioeconomic background variables are controlled. Thus, while there are clear effects of metropolitan and regional location, especially during the adolescent years, the primary explanation for race-ethnic differentials lies in the social and economic differences between majority and minority populations.

In Table 7, we have disaggregated the analysis in Table 6 by region. That is, within each of the Census regions, we estimated models with effects of race-ethnicity, year, and gender and models with effects of those and the socioeconomic variables. Table 7 reports only the effects of race-ethnicity in these models. Despite the disaggregation, each of these analyses is based on more than 12,000 observations.

When year and gender are controlled–and with one strong exception–the age-patterns of enrollment below the modal grade follow the same pattern regionally as nationally. That is, the differential between majority and minority groups increases with age. The one exception is in the West, where there is very little increase in enrollment below the modal grade among African-Americans. The full model holds more surprises when it is estimated by region. In the Midwest, South, and West, net of social background, there is little evidence of unfavorable race-ethnic differentials in age-grade retardation at any age. In fact, there is a smattering of significant effects favoring minority students in those regions. Only in the East is there a regular pattern of increasing differentials with age, favoring whites. In that region, African-Americans and Hispanics are significantly more likely than whites to fall below the modal grade at ages 12, 15, and 17.

EFFECTS OF SPECIFIC GEOGRAPHIC LOCATION

Major Metropolitan Cities and Suburbs

The October CPS samples are large enough to permit estimation of the effects of residence in specific large states and metropolitan areas. We report these differentials only at ages 12, 15, and 17–ages when social and economic differentials in age-grade retardation are well established. Figures 6a to 6c report predicted percentages of students who are age-grade retarded for central cities and suburbs of the 17 largest metropolitan areas and for the aggregate of smaller metropolitan areas. The estimates are not observed rates of age-grade retardation, but rather they are based on a model that controls the effects of race-ethnicity, gender, year, and socioeconomic background. The estimates in the figure pertain to white male youth from intact families in rental housing whose other social and economic characteristics are at the averages for the age group. Since the model is additive–that is, the effect of each variable does not depend on the values of other variables–this norming does not affect estimated differences among metropolitan areas. The relative effects of metropolitan areas would be the same if we chose any other reference group. In Figures 6a to 6c, the metropolitan areas appear in descending order as determined by the average rate of age-grade retardation across ages 12, 15, and 17 in central cities.

In general, there is agreement across ages in the ranking of metropolitan areas. That is, areas with high rates of age-grade retardation at one age tend also to have high rates at the other two ages. There is also a geographic pattern to the ordering of cities: Southern cities have the highest rates of age-grade retardation, while northern and western cities have the lowest rates. Also, there is increasing differentiation between central cities and their suburbs with increases in

age. By age 17, rates of age-grade retardation are higher in central cities than in suburbs in all but the four metropolitan areas with the lowest rates across all ages–Minneapolis-St. Paul, Pittsburgh, Newark, and Los Angeles-Long Beach.

States and State Groups

Following the same scheme as in the comparisons across metropolitan areas, Figures7a to 7c report estimates of the percentages of youth who are age-grade retarded by states or groups of adjacent states. Again, the estimates pertain to an additive model and are normed on white male youth from intact families in rental housing, and the states (or state groups) are ordered from left to right in descending order of average rates of retardation across ages 12, 15, and 17. The differentiation among states is not as great as that among metropolitan areas, nor is the regional pattern as marked as in the case of differences among metropolitan areas. While the lowest rates are estimated in the East, Midwest, and West, the highest rates of age-grade retardation are not limited to the South. For example, along with Texas, the District of Columbia, Florida, and the Deep South (Alabama and Mississippi), high net rates of retention are also estimated for Indiana, Ohio, and the Upper Midwest (Minnesota, Iowa, Missouri, and North Dakota). However, the state differentials are also more consistent from one year of age to the next than are those among metropolitan areas. Thus, we are confident that the estimates pertain to consistent state and regional differences across the 27 years of the study. One striking finding is that the highest and lowest rates of age-grade retardation for states–Texas and California–correspond to the highest and lowest rates among metropolitan areas–Houston and Los Angeles-Long Beach.

With or without these details, one main finding is strong and clear: During the period from 1972 to 1998, social background, along with geographic location, accounted for almost all

of the large race-ethnic differentials in age-grade retardation. Although the odds of falling behind are about twice as great in minority groups as among whites, the race-ethnic differentials are small when social background and geographic location have been controlled. It would be overly simple to say that class, rather than race was the dominant factor affecting rates of progress through elementary and early secondary school. It would better to say that a broader set of social and economic background variables, not including race-ethnicity per se, were responsible for most observable race-ethnic differentials in age-grade retardation.

RACE-ETHNICITY, SES, AND TEST-BASED PROMOTION

There are good reasons to wonder whether the same relationships among race-ethnicity, social background, and age-grade retardation will persist, or whether they may change amidst the current movement toward test-based decision-making in elementary and secondary schooling. There are already strong relationships between race-ethnicity, socioeconomic status (SES), and the use of tests for promotion and retention, and these may become yet stronger. A recent national longitudinal study, using the NELS database, shows that certain students are far likelier than others to be subject to promotion tests in the 8th grade (Reardon, 1996: 4-5):

> [S]tudents in urban schools, in schools with high concentrations of low-income and minority students, and schools in southern and western states, are considerably more likely to have [high-stakes] test requirements in eighth grade. Among eighth graders, 35 percent of Black students and 27 percent of Hispanic students are subject to [a high-stakes test in at least one subject] to advance to ninth grade, compared to 15 percent of white students. Similarly, 25 percent of students in the lowest SES quartile, but only 14

percent of those in the top quartile, are subject to eighth grade [high-stakes test] requirements.

Moreover, the study found that the presence of high-stakes 8th grade tests is associated with sharply higher dropout rates, especially for students at schools serving mainly low-SES students. For such students, dropping out of school early—between the 8th and 10th grades—was 6 to 8 percent more likely than for students from schools that were similar excepting the high-stakes test requirement (Reardon, 1996).

What does it mean that minority students and low-SES students are more likely to be subject to high-stakes tests in the 8th grade? Perhaps, as Reardon points out, such policies are "related to the prevalence of low-achieving students—the group proponents believe the tests are most likely to help." Perhaps the adoption of high-stakes test policies for individuals serves the larger social purpose of ensuring that promotion from 8th to 9th grades reflects acquisition of certain knowledge and skills. Such tests may also motivate less able students and teachers to work harder or to focus their attention on the knowledge domains that test developers value most highly. But if retention in grade is not, on balance, beneficial for students, as the research suggests (Shepard and Smith, 1989; Hauser, 1999), it is cause for concern that low-SES children and minority students are disproportionately subject to any negative consequences.

Those who leave school without diplomas have diminished life chances. High dropout rates carry many social costs. It may thus be problematic if high-stakes tests lead individual students who would not otherwise have done so to drop out. There may also be legal implications if it appears that the public is prepared to adopt high-stakes test programs chiefly

when their consequences will be felt disproportionately by minority students[15] and low-SES students.

New York City appears to be following a similar cycle of strict and loose retention policies, in which the unsuccessful Promotional Gates program of the 1980s was at first "promising," then "withered," and was finally canceled by 1990, only to be revived in 1998 by a new central administration (Steinberg, 1998a; Steinberg, 1998b). This cycle of policies, combining strict retention criteria with a weak commitment to remedial instruction, is likely to reconfirm past evidence that retention in grade is typically harmful to students.

Another important question is whether the use of a test in making promotion decisions exacerbates existing inequalities or creates new ones. For example, in their case study of a school district that decided to use tests as a way to raise standards, Ellwein and Glass (Ellwein and Glass, 1989) found that test information was used selectively in making promotion and retention decisions, leading to what was perceived as negative consequences for certain groups of students.[16] Thus, although minorities accounted for 59 percent of the students who failed the 1985 kindergarten test, they made up 69 percent of the students who were retained and received transition services. A similar pattern was observed at grade 2. This finding appears on a much larger scale in Moore's (1999) analysis of recent retention practices in the Chicago Public Schools.

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[15] For a discussion of possible claims of discrimination based on race or national origin, see National Research Council (1999 Chapter 3).

[16] Ellwein and Glass (1989) assumed that the intervention, i.e. retention, was not as beneficial as promotion to the next grade level.

In addition, there may be problems with using a test as the *sole* measure of the effectiveness of retention or other interventions (summer school, tutoring, and so on). This concern is related to the fact that the validity of test and retest scores depends in part on whether the scores reflect students' familiarity with actual test items or a particular test format. For example, there is evidence that improved scores on one test may not actually carry over when a new test of the same knowledge and skills is introduced (Koretz, et al., 1991; House, 1998; Linn, 2000).

The current reform and test-based accountability systems of the Chicago Public Schools provide an example of high-stakes test use for individual students that raises serious questions about "teaching to the test." Although Chicago is developing its own standards-based, course-specific assessment system, it presently remains committed to using the Iowa Test of Basic Skills as the yardstick for student and school accountability. Teachers are given detailed manuals on preparing their students for the tests (Chicago Public Schools, 1996a; Chicago Public Schools, 1996b). Student test scores have increased substantially, both during the intensive summer remedial sessions—the Summer Bridge program—and between the 1996-1997 and 1997-1998 school years (Chicago Public Schools, 1997b; Chicago Public Schools, 1998b), but the available data provide no means of distinguishing true increases in student learning from statistical artifacts or invalid comparisons. Such gains would be expected from the combined effects of teaching to the test, repeated use of a similar test, and, in the case of the Summer Bridge program, the initial selection of students with low scores on the test.[17] Unfortunately, the

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[17] In the Chicago Public Schools, each retest is based on an alternative form of the Iowa Test of Basic Skills.

evaluation of Chicago's policies, now underway at the Chicago Consortium on School Research (1999), has failed to provide an independent criterion of their effectiveness.

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Table 1. Effects of Geographic Location, Social Background, and Year on Age-Grade Retardation: 6 Year-Old Youth, 1972-1998 (N = 60,506)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Race-ethnicity						
White	--	--	1.000	--	--	1.000
African-American	-0.375	0.041	0.687	-0.313	0.048	0.732
Hispanic	0.026	0.044	1.026	0.004	0.052	1.004
Other	-0.209	0.068	0.811	-0.382	0.071	0.682
Gender						
Female	--	--	1.000	--	--	1.000
Male	0.346	0.026	1.414	0.361	0.026	1.435
Metropolitan status						
Major central city	--	--	1.000	--	--	1.000
Major suburb	0.295	0.064	1.344	0.272	0.068	1.313
Smaller central city	0.438	0.062	1.549	0.465	0.064	1.592
Smaller suburb	0.439	0.059	1.551	0.447	0.063	1.564
Non-metropolitan	0.710	0.056	2.035	0.678	0.061	1.971
Not identifiable	0.806	0.059	2.238	0.685	0.064	1.984
Region						
East	--	--	1.000	--	--	1.000
Midwest	0.684	0.038	1.983	0.688	0.040	1.989
South	0.226	0.040	1.254	0.171	0.042	1.187
West	0.345	0.041	1.411	0.248	0.043	1.281
Family background						
Log (family income)	-0.108	0.014	0.897	-0.086	0.020	0.918
Home ownership	-0.041	0.026	0.960	-0.065	0.032	0.937
Head's K-12 education	-0.003	0.007	0.997	-0.022	0.008	0.979
Head's post-secondary education	-0.002	0.007	0.998	-0.003	0.010	0.997
Spouse's K-12 education	-0.013	0.008	0.987	-0.015	0.010	0.985
Spouse's post-secondary education	0.025	0.008	1.025	0.029	0.011	1.030
Head's occupational status	-0.009	0.007	0.991	0.007	0.009	1.007
Spouse's occupational status	-0.000	0.010	1.000	-0.023	0.012	0.977
Non-intact family	-0.012	0.030	0.988	-0.105	0.043	0.900
Total number of children in household	0.017	0.009	1.018	0.048	0.010	1.049

(Table 1 continued on next page)

(Table 1, continued)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Year						
1972	--	--	1.000	--	--	1.000
1973	-0.092	0.132	0.912	-0.072	0.133	0.931
1974	-0.108	0.134	0.898	-0.072	0.135	0.930
1975	-0.018	0.130	0.982	0.026	0.131	1.026
1976	0.220	0.123	1.246	0.251	0.124	1.286
1977	0.268	0.118	1.308	0.266	0.119	1.304
1978	0.366	0.119	1.442	0.370	0.120	1.448
1979	0.477	0.118	1.611	0.494	0.120	1.639
1980	0.640	0.111	1.897	0.644	0.113	1.905
1981	0.676	0.114	1.966	0.676	0.115	1.966
1982	0.830	0.111	2.293	0.843	0.112	2.322
1983	0.744	0.112	2.105	0.744	0.113	2.104
1984	0.831	0.111	2.297	0.850	0.113	2.339
1985	1.015	0.108	2.760	1.036	0.110	2.819
1986	1.107	0.106	3.025	1.161	0.108	3.192
1987	1.323	0.104	3.754	1.383	0.106	3.987
1988	1.187	0.107	3.277	1.226	0.108	3.409
1989	1.350	0.104	3.859	1.412	0.106	4.102
1990	1.197	0.106	3.310	1.246	0.107	3.478
1991	1.316	0.105	3.728	1.379	0.107	3.973
1992	1.224	0.106	3.401	1.285	0.108	3.614
1993	1.155	0.107	3.175	1.212	0.109	3.360
1994	1.054	0.109	2.869	1.150	0.111	3.159
1995	0.958	0.111	2.606	1.057	0.112	2.879
1996	1.216	0.108	3.373	1.323	0.111	3.755
1997	1.137	0.110	3.117	1.230	0.112	3.420
1998	1.151	0.109	3.162	1.262	0.111	3.533
Missing family income	-0.072	0.060	0.931	-0.013	0.062	0.987
Missing head's education	0.019	0.267	1.019	-0.450	0.331	0.637
Missing spouse's education	0.344	0.171	1.410	0.086	0.215	1.090
Missing head's occupation	0.084	0.038	1.088	0.071	0.045	1.074
Missing spouse's occupation	-0.039	0.025	0.962	0.085	0.031	1.089
Constant	--	--	--	-2.699	0.246	0.067

Table 2. Effects of Geographic Location, Social Background, and Year on Age-Grade Retardation: 9 Year-Old Youth, 1972-1998 (N = 61,458)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Race-ethnicity						
White	--	--	1.000	--	--	1.000
African-American	0.385	0.027	1.469	0.040	0.033	1.040
Hispanic	0.387	0.033	1.473	-0.071	0.041	0.932
Other	-0.052	0.053	0.949	-0.289	0.057	0.749
Gender						
Female	--	--		--	--	1.000
Male	0.401	0.020	1.494	0.429	0.020	1.535
Metropolitan status						
Major central city	--	--	1.000	--	--	1.000
Major suburb	-0.269	0.045	0.764	0.078	0.048	1.081
Smaller central city	0.190	0.042	1.210	0.329	0.045	1.390
Smaller suburb	-0.044	0.039	0.957	0.263	0.044	1.301
Non-metropolitan	0.251	0.037	1.285	0.398	0.042	1.488
Not identifiable	0.176	0.041	1.192	0.373	0.046	1.452
Region						
East	--	--	1.000	--	--	1.000
Midwest	0.321	0.029	1.379	0.305	0.030	1.357
South	0.368	0.028	1.445	0.172	0.031	1.188
West	0.091	0.031	1.096	-0.012	0.033	0.988
Family background						
Log (family income)	-0.402	0.011	0.669	-0.188	0.016	0.829
Home ownership	-0.437	0.020	0.646	-0.159	0.025	0.853
Head's K-12 education	-0.096	0.004	0.908	-0.062	0.006	0.940
Head's post-secondary education	-0.083	0.006	0.920	-0.009	0.008	0.991
Spouse's K-12 education	-0.120	0.006	0.887	-0.058	0.007	0.944
Spouse's post-secondary education	-0.062	0.008	0.940	0.002	0.010	1.002
Head's occupational status	-0.125	0.006	0.882	-0.040	0.008	0.961
Spouse's occupational status	-0.115	0.009	0.891	-0.034	0.010	0.966
Non-intact family	0.321	0.022	1.379	0.067	0.033	1.069
Total number of children in household	0.092	0.006	1.096	0.078	0.007	1.081

(Table 2 continued on next page)

(Table 2, continued)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Year						
1972	--	--	1.000	--	--	1.000
1973	-0.109	0.071	0.897	-0.072	0.073	0.931
1974	-0.088	0.072	0.916	-0.056	0.074	0.945
1975	-0.096	0.074	0.908	-0.084	0.076	0.920
1976	-0.129	0.075	0.879	-0.060	0.077	0.942
1977	0.026	0.070	1.026	0.104	0.072	1.110
1978	0.021	0.071	1.021	0.136	0.073	1.145
1979	0.050	0.070	1.051	0.175	0.073	1.192
1980	0.112	0.067	1.118	0.214	0.069	1.238
1981	0.204	0.069	1.227	0.317	0.072	1.373
1982	0.187	0.071	1.206	0.284	0.073	1.328
1983	0.322	0.070	1.379	0.443	0.073	1.557
1984	0.233	0.071	1.263	0.342	0.073	1.408
1985	0.356	0.071	1.427	0.511	0.074	1.667
1986	0.444	0.069	1.560	0.605	0.072	1.832
1987	0.443	0.068	1.558	0.616	0.071	1.851
1988	0.529	0.069	1.698	0.692	0.072	1.997
1989	0.529	0.067	1.698	0.708	0.070	2.029
1990	0.499	0.067	1.647	0.664	0.070	1.943
1991	0.479	0.068	1.614	0.652	0.071	1.919
1992	0.486	0.068	1.625	0.649	0.072	1.914
1993	0.461	0.068	1.585	0.661	0.072	1.937
1994	0.374	0.070	1.454	0.570	0.073	1.768
1995	0.292	0.072	1.339	0.493	0.075	1.637
1996	0.323	0.073	1.381	0.565	0.076	1.759
1997	0.386	0.072	1.471	0.598	0.075	1.819
1998	0.353	0.073	1.424	0.587	0.076	1.798
Missing family income	0.031	0.043	1.032	0.071	0.044	1.073
Missing head's education	0.111	0.209	1.117	0.088	0.292	1.091
Missing spouse's education	0.120	0.159	1.127	-0.243	0.221	0.785
Missing head's occupation	0.459	0.028	1.583	0.100	0.034	1.106
Missing spouse's occupation	0.193	0.020	1.213	0.016	0.025	1.016
Constant	--	--	--	1.007	0.181	2.738

Table 3. Effects of Geographic Location, Social Background, and Year on Age-Grade Retardation: 12 Year-Old Youth, 1972-1998 (N = 62,830)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Race-ethnicity						
White	--	--	1.000	--	--	1.000
African-American	0.524	0.026	1.689	0.046	0.031	1.047
Hispanic	0.585	0.032	1.794	-0.036	0.040	0.964
Other	0.231	0.048	1.260	-0.064	0.052	0.938
Gender						
Female	--	--		--	--	1.000
Male	0.487	0.019	1.628	0.512	0.019	1.669
Metropolitan status						
Major central city	--	--	1.000	--	--	1.000
Major suburb	-0.476	0.041	0.621	-0.009	0.045	0.991
Smaller central city	0.009	0.039	1.009	0.180	0.042	1.197
Smaller suburb	-0.216	0.036	0.806	0.176	0.041	1.192
Non-metropolitan	0.071	0.034	1.074	0.267	0.040	1.306
Not identifiable	-0.005	0.038	0.995	0.272	0.044	1.312
Region						
East	--	--	1.000	--	--	1.000
Midwest	0.187	0.028	1.206	0.210	0.029	1.233
South	0.397	0.026	1.488	0.216	0.029	1.241
West	0.027	0.029	1.027	-0.059	0.031	0.943
Family background						
Log (family income)	-0.494	0.011	0.610	-0.199	0.015	0.819
Home ownership	-0.639	0.020	0.528	-0.309	0.024	0.734
Head's K-12 education	-0.118	0.004	0.888	-0.073	0.005	0.929
Head's post-secondary education	-0.104	0.006	0.902	-0.021	0.008	0.979
Spouse's K-12 education	-0.149	0.005	0.862	-0.068	0.007	0.934
Spouse's post-secondary education	-0.081	0.007	0.922	-0.010	0.010	0.990
Head's occupational status	-0.154	0.005	0.857	-0.042	0.007	0.958
Spouse's occupational status	-0.142	0.008	0.868	-0.037	0.009	0.964
Non-intact family	0.410	0.021	1.506	0.121	0.032	1.129
Total number of children in household	0.093	0.006	1.098	0.077	0.007	1.080

(Table 3 continued on next page)

(Table 3, continued)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Year						
1972	--	--	1.000	--	--	1.000
1973	-0.093	0.065	0.911	-0.048	0.068	0.953
1974	-0.096	0.066	0.908	-0.062	0.068	0.940
1975	-0.082	0.066	0.921	-0.044	0.068	0.957
1976	-0.087	0.067	0.916	-0.041	0.070	0.960
1977	-0.227	0.067	0.797	-0.164	0.069	0.849
1978	-0.141	0.068	0.869	-0.053	0.070	0.948
1979	-0.108	0.068	0.898	-0.004	0.071	0.996
1980	-0.020	0.064	0.980	0.088	0.067	1.092
1981	0.023	0.066	1.023	0.153	0.069	1.166
1982	0.146	0.063	1.157	0.279	0.067	1.322
1983	0.109	0.065	1.115	0.238	0.069	1.269
1984	0.318	0.065	1.374	0.458	0.069	1.582
1985	0.193	0.067	1.213	0.339	0.070	1.403
1986	0.274	0.067	1.315	0.438	0.071	1.550
1987	0.198	0.068	1.218	0.384	0.071	1.468
1988	0.362	0.067	1.436	0.541	0.071	1.718
1989	0.489	0.065	1.631	0.686	0.069	1.985
1990	0.352	0.065	1.421	0.534	0.069	1.705
1991	0.397	0.065	1.488	0.595	0.068	1.813
1992	0.491	0.064	1.634	0.698	0.067	2.009
1993	0.453	0.065	1.573	0.625	0.069	1.869
1994	0.428	0.066	1.535	0.646	0.070	1.909
1995	0.493	0.065	1.637	0.740	0.069	2.096
1996	0.440	0.068	1.553	0.687	0.071	1.987
1997	0.343	0.068	1.409	0.629	0.072	1.876
1998	0.185	0.070	1.204	0.432	0.073	1.541
Missing family income	0.060	0.038	1.062	0.095	0.039	1.100
Missing head's education	0.418	0.230	1.519	-0.030	0.313	0.970
Missing spouse's education	0.506	0.173	1.659	0.033	0.235	1.034
Missing head's occupation	0.593	0.027	1.809	0.100	0.032	1.105
Missing spouse's occupation	0.260	0.019	1.297	-0.025	0.025	0.975
Constant	--	--	--	1.817	0.172	6.150

Table 4. Effects of Geographic Location, Social Background, and Year on Age-Grade Retardation: 15 Year-Old Youth, 1972-1998 (N = 63,531)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Race-ethnicity						
White	--	--	1.000	--	--	1.000
African-American	0.643	0.025	1.902	-0.053	0.031	0.948
Hispanic	0.787	0.032	2.197	-0.004	0.039	0.996
Other	0.352	0.047	1.422	0.048	0.052	1.049
Gender						
Female	--	--		--	--	1.000
Male	0.510	0.018	1.666	0.575	0.019	1.777
Metropolitan status						
Major central city	--	--	1.000	--	--	1.000
Major suburb	-0.740	0.039	0.477	-0.251	0.043	0.778
Smaller central city	-0.103	0.037	0.902	0.066	0.041	1.068
Smaller suburb	-0.441	0.034	0.643	-0.034	0.039	0.967
Non-metropolitan	-0.171	0.032	0.843	-0.010	0.038	0.990
Not identifiable	-0.276	0.037	0.759	0.065	0.042	1.067
Region						
East	--	--	1.000	--	--	1.000
Midwest	0.051	0.027	1.052	0.106	0.028	1.112
South	0.428	0.025	1.535	0.273	0.028	1.314
West	-0.065	0.028	0.937	-0.136	0.031	0.873
Family background						
Log (family income)	-0.573	0.011	0.564	-0.185	0.015	0.831
Home ownership	-0.787	0.020	0.455	-0.360	0.024	0.697
Head's K-12 education	-0.142	0.004	0.868	-0.078	0.005	0.925
Head's post-secondary education	-0.139	0.006	0.870	-0.046	0.008	0.955
Spouse's K-12 education	-0.188	0.005	0.829	-0.082	0.007	0.922
Spouse's post-secondary education	-0.109	0.008	0.897	-0.001	0.010	0.999
Head's occupational status	-0.197	0.005	0.821	-0.061	0.007	0.941
Spouse's occupational status	-0.187	0.008	0.829	-0.052	0.009	0.949
Non-intact family	0.527	0.020	1.693	0.214	0.031	1.238
Total number of children in household	0.121	0.006	1.129	0.091	0.006	1.095

(Table 4 continued on next page)

(Table 4, continued)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Year						
1972	--	--	1.000	--	--	1.000
1973	-0.016	0.061	0.984	-0.009	0.064	0.991
1974	-0.037	0.061	0.963	-0.020	0.064	0.980
1975	0.003	0.061	1.003	0.024	0.064	1.024
1976	-0.061	0.061	0.941	0.014	0.065	1.014
1977	-0.089	0.060	0.915	0.003	0.063	1.003
1978	-0.071	0.060	0.931	0.036	0.064	1.037
1979	-0.030	0.061	0.970	0.078	0.064	1.082
1980	0.023	0.059	1.023	0.106	0.063	1.111
1981	0.074	0.061	1.077	0.191	0.065	1.210
1982	-0.013	0.062	0.987	0.100	0.066	1.105
1983	-0.000	0.063	1.000	0.143	0.067	1.153
1984	0.082	0.062	1.086	0.249	0.067	1.282
1985	0.148	0.061	1.159	0.373	0.065	1.452
1986	0.071	0.063	1.073	0.254	0.067	1.289
1987	0.027	0.065	1.028	0.228	0.070	1.256
1988	0.135	0.067	1.144	0.391	0.071	1.478
1989	0.236	0.064	1.266	0.465	0.069	1.592
1990	0.225	0.064	1.252	0.460	0.068	1.585
1991	0.258	0.065	1.294	0.475	0.069	1.608
1992	0.286	0.064	1.331	0.491	0.069	1.634
1993	0.322	0.065	1.380	0.557	0.070	1.745
1994	0.195	0.065	1.215	0.468	0.070	1.596
1995	0.402	0.064	1.495	0.694	0.069	2.001
1996	0.256	0.065	1.292	0.528	0.070	1.696
1997	0.267	0.066	1.307	0.543	0.071	1.721
1998	0.236	0.066	1.266	0.572	0.071	1.772
Missing family income	0.047	0.035	1.048	0.057	0.036	1.058
Missing head's education	0.254	0.258	1.289	0.131	0.392	1.140
Missing spouse's education	0.327	0.190	1.387	-0.297	0.293	0.743
Missing head's occupation	0.719	0.026	2.053	0.128	0.031	1.137
Missing spouse's occupation	0.435	0.018	1.545	0.071	0.025	1.074
Constant	--	--	--	2.339	0.170	10.368

Table 5. Effects of Geographic Location, Social Background, and Year on Age-Grade Retardation: 17 Year-Old Youth, 1972-1998 (N = 57,564)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Race-ethnicity						
White	--	--	1.000	--	--	1.000
African-American	0.868	0.026	2.381	0.098	0.032	1.103
Hispanic	0.980	0.034	2.663	0.106	0.042	1.112
Other	0.511	0.049	1.668	0.124	0.055	1.132
Gender						
Female	--	--		--	--	1.000
Male	0.537	0.019	1.711	0.611	0.020	1.841
Metropolitan status						
Major central city	--	--	1.000	--	--	1.000
Major suburb	-0.886	0.040	0.412	-0.315	0.044	0.730
Smaller central city	-0.283	0.038	0.753	-0.064	0.042	0.938
Smaller suburb	-0.625	0.035	0.535	-0.136	0.041	0.873
Non-metropolitan	-0.444	0.033	0.641	-0.195	0.040	0.823
Not identifiable	-0.556	0.037	0.574	-0.123	0.044	0.884
Region						
East	--	--	1.000	--	--	1.000
Midwest	-0.010	0.027	0.990	0.095	0.029	1.100
South	0.351	0.026	1.420	0.224	0.029	1.251
West	0.019	0.029	1.019	-0.027	0.032	0.973
Family background						
Log (family income)	-0.657	0.012	0.518	-0.234	0.016	0.791
Home ownership	-0.952	0.021	0.386	-0.458	0.025	0.633
Head's K-12 education	-0.150	0.004	0.861	-0.073	0.005	0.929
Head's post-secondary education	-0.149	0.006	0.862	-0.051	0.008	0.950
Spouse's K-12 education	-0.205	0.006	0.815	-0.086	0.007	0.917
Spouse's post-secondary education	-0.122	0.008	0.885	-0.013	0.010	0.987
Head's occupational status	-0.202	0.005	0.817	-0.054	0.007	0.947
Spouse's occupational status	-0.203	0.008	0.817	-0.056	0.010	0.945
Non-intact family	0.632	0.021	1.882	0.238	0.032	1.269
Total number of children in household	0.150	0.006	1.162	0.106	0.007	1.112

(Table 5 continued on next page)

(Table 5, continued)

	Gross Effect			Net Effect		
	Coefficient	Std.error	EXP(Coef)	Coefficient	Std.error	EXP(Coef)
Year						
1972	--	--	1.000	--	--	1.000
1973	-0.030	0.065	0.971	0.038	0.069	1.038
1974	0.002	0.065	1.002	0.030	0.070	1.030
1975	0.048	0.065	1.049	0.083	0.070	1.086
1976	0.028	0.065	1.028	0.088	0.070	1.092
1977	0.005	0.063	1.005	0.104	0.068	1.110
1978	-0.026	0.064	0.974	0.114	0.068	1.121
1979	-0.007	0.065	0.993	0.145	0.069	1.156
1980	0.031	0.062	1.032	0.172	0.067	1.188
1981	-0.040	0.065	0.960	0.083	0.070	1.086
1982	-0.090	0.065	0.914	0.021	0.070	1.021
1983	-0.042	0.066	0.959	0.090	0.071	1.094
1984	-0.040	0.067	0.961	0.112	0.072	1.118
1985	0.084	0.067	1.087	0.243	0.072	1.275
1986	0.027	0.067	1.028	0.241	0.072	1.272
1987	0.065	0.066	1.067	0.308	0.071	1.361
1988	0.031	0.068	1.032	0.256	0.074	1.292
1989	0.113	0.068	1.119	0.369	0.073	1.446
1990	0.249	0.067	1.283	0.445	0.073	1.561
1991	0.348	0.067	1.416	0.553	0.073	1.738
1992	0.306	0.067	1.358	0.508	0.073	1.663
1993	0.382	0.069	1.465	0.647	0.075	1.911
1994	0.241	0.068	1.272	0.508	0.074	1.663
1995	0.326	0.068	1.386	0.633	0.074	1.884
1996	0.311	0.070	1.365	0.633	0.075	1.883
1997	0.364	0.069	1.439	0.678	0.075	1.969
1998	0.340	0.069	1.404	0.685	0.075	1.985
Missing family income	0.029	0.035	1.030	0.069	0.037	1.071
Missing head's education	0.336	0.334	1.399	0.380	0.503	1.463
Missing spouse's education	0.230	0.242	1.259	-0.530	0.368	0.588
Missing head's occupation	0.799	0.027	2.223	0.170	0.032	1.186
Missing spouse's occupation	0.479	0.019	1.614	0.018	0.026	1.018
Constant	--	--	--	3.087	0.182	21.902

Table 6. Effects of Race-Ethnicity by Age in Selected Models of Social Background and Enrollment below Modal Grade for Age

Model	Gender and year			Add region and city			Add family background		
	Coef.	Std. err.		Coef.	std.error		Coef.	std.error	
Age 6 (N = 60,506)									
Black	-0.384	0.042	***	-0.212	0.045	***	-0.313	0.048	***
Hispanic	-0.054	0.045		0.169	0.047	***	0.004	0.052	
Other	-0.345	0.069	***	-0.280	0.070	***	-0.382	0.071	***
Age 9 (N = 61,458)									
Black	0.389	0.027	***	0.406	0.030	***	0.040	0.033	
Hispanic	0.358	0.034	***	0.505	0.036	***	-0.071	0.041	
Other	-0.123	0.054	*	-0.032	0.055		-0.289	0.057	***
Age 12 (N = 62,830)									
Black	0.531	0.026	***	0.487	0.028	***	0.046	0.031	
Hispanic	0.548	0.033	***	0.658	0.035	***	-0.036	0.040	
Other	0.153	0.049	**	0.257	0.050	***	-0.064	0.052	
Age 15 (N = 63,531)									
Black	0.661	0.025	***	0.512	0.028	***	-0.053	0.031	
Hispanic	0.768	0.032	***	0.818	0.034	***	-0.004	0.039	
Other	0.311	0.048	***	0.421	0.049	***	0.048	0.052	
Age 17 (N = 57,564)									
Black	0.892	0.026	***	0.743	0.028	***	0.098	0.032	**
Hispanic	0.976	0.034	***	0.966	0.036	***	0.106	0.042	*
Other	0.475	0.049	***	0.525	0.051	***	0.124	0.055	*

Note: Statistical significance is indicated by * ($p < .05$); ** ($p < .01$); and *** ($p < .001$).

Table 7. Model-based Estimates of the Effects of Race-Ethnicity on Enrollment below Modal Grade for Age by Age and Census Region

Model	Age 6			Age 9			Age 12			Age 15			Age 17		
	Coef.	Std. err.		Coef.	std.error		Coef.	std.error		Coef.	std.error		Coef.	std.error	
Models with year and gender															
East	N = 12,782			N = 13,166			N = 13,454			N = 13,865			N = 12,680		
Black	-0.426	0.116	***	0.298	0.069	***	0.489	0.064	***	0.763	0.059	***	1.067	0.060	***
Hispanic	-0.293	0.130	*	0.556	0.079	***	0.809	0.075	***	1.224	0.071	***	1.362	0.077	***
Other	-0.168	0.207		-0.163	0.154		0.315	0.134	*	0.322	0.141	*	0.399	0.139	**
Midwest	N = 15,387			N = 15,842			N = 16,285			N = 16,637			N = 15,513		
Black	-0.700	0.090	***	0.082	0.061		0.339	0.058	***	0.521	0.057	***	0.853	0.057	***
Hispanic	-0.185	0.142		0.111	0.122		0.550	0.113	***	0.508	0.114	***	0.881	0.126	***
Other	-0.168	0.144		-0.119	0.126		0.447	0.111	***	0.670	0.111	***	0.907	0.121	***
South	N = 18,243			N = 18,612			N = 19,049			N = 19,433			N = 17,190		
Black	-0.105	0.059		0.544	0.039	***	0.597	0.037	***	0.571	0.036	***	0.827	0.038	***
Hispanic	0.316	0.081	***	0.660	0.060	***	0.742	0.059	***	0.933	0.058	***	1.013	0.064	***
Other	-0.350	0.195		0.058	0.136		0.443	0.121	***	0.318	0.121	**	0.354	0.133	**
West	N = 14,094			N = 13,839			N = 14,044			N = 13,597			N = 12,181		
Black	-0.518	0.145	***	0.035	0.102		-0.108	0.101		0.058	0.100		0.186	0.095	
Hispanic	0.002	0.069		0.254	0.056	***	0.381	0.054	***	0.553	0.054	***	0.805	0.055	***
Other	-0.399	0.097	***	-0.073	0.076		0.015	0.071		0.333	0.068	***	0.457	0.069	***

(Table 7 continued on next page)

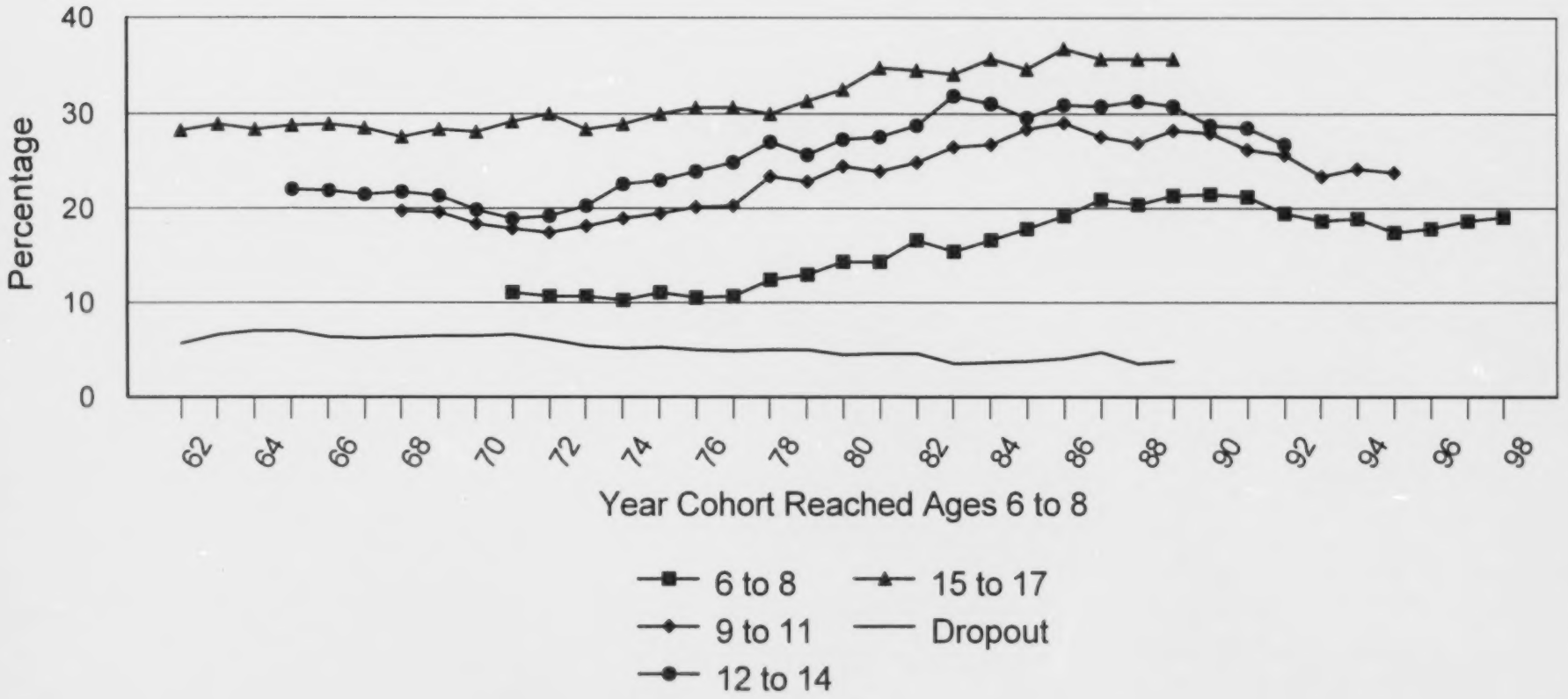
(Table 7, continued)

Models with year, gender, metropolitan status, and social background

East	N = 12,782			N = 13,166			N = 13,454			N = 13,865			N = 12,680	
Black	-0.316	0.133	*	0.183	0.084	*	0.215	0.077	**	0.308	0.073	***	0.372	0.074	***
Hispanic	-0.331	0.150	*	0.187	0.096		0.249	0.092	**	0.377	0.089	***	0.297	0.095	**
Other	-0.161	0.214		-0.227	0.164		0.269	0.144		0.092	0.155		-0.044	0.157	
Midwest	N = 15,387			N = 15,842			N = 16,285			N = 16,637			N = 15,513	
Black	-0.525	0.106	***	0.008	0.077		0.058	0.073		-0.049	0.073		0.166	0.074	*
Hispanic	-0.043	0.153		-0.249	0.137		-0.087	0.129		-0.297	0.129	*	-0.111	0.146	
Other	-0.284	0.150		-0.465	0.134	***	0.099	0.119		0.260	0.120	*	0.627	0.130	***
South	N = 18,243			N = 18,612			N = 19,049			N = 19,433			N = 17,190	
Black	-0.210	0.069	**	0.028	0.047		0.026	0.045		-0.172	0.044	***	-0.011	0.047	
Hispanic	0.141	0.092		0.047	0.070		0.039	0.069		0.082	0.068		0.140	0.075	
Other	-0.453	0.197	*	-0.171	0.141		0.189	0.128		0.050	0.131		0.014	0.144	
West	N = 14,094			N = 13,839			N = 14,044			N = 13,597			N = 12,181	
Black	-0.320	0.152	*	-0.064	0.110		-0.245	0.110	*	-0.205	0.109		-0.274	0.106	**
Hispanic	-0.026	0.085		-0.173	0.071	*	-0.169	0.070	*	-0.078	0.069		0.053	0.070	
Other	-0.433	0.101	***	-0.290	0.080	***	-0.271	0.076	***	0.010	0.074		0.045	0.076	

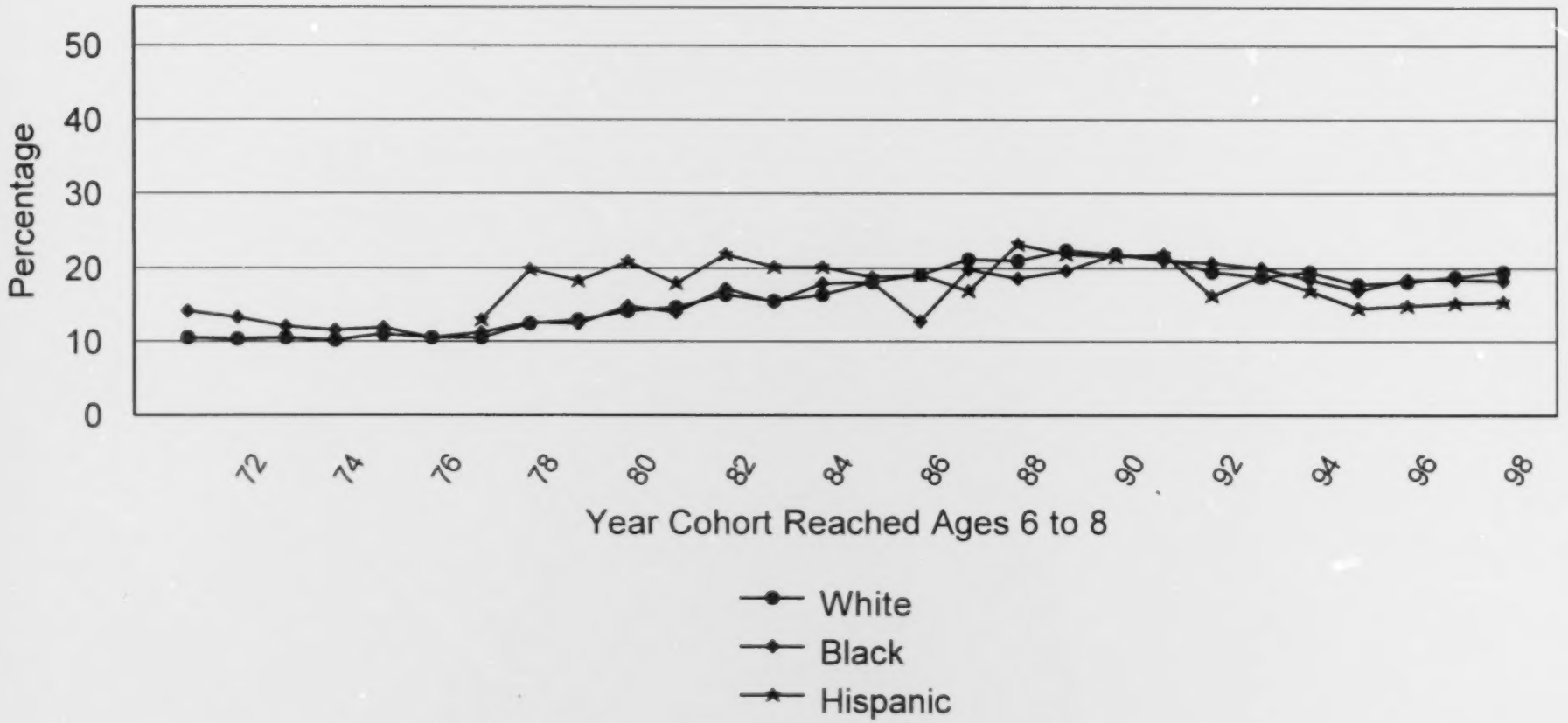
Note: Statistical significance is indicated by * ($p < .05$); ** ($p < .01$); and *** ($p < .001$).

Figure 1
Percentage of Children Enrolled Below Modal Grade for Age
by Age Group and Year in which Cohort was 6 to 8 Years Old



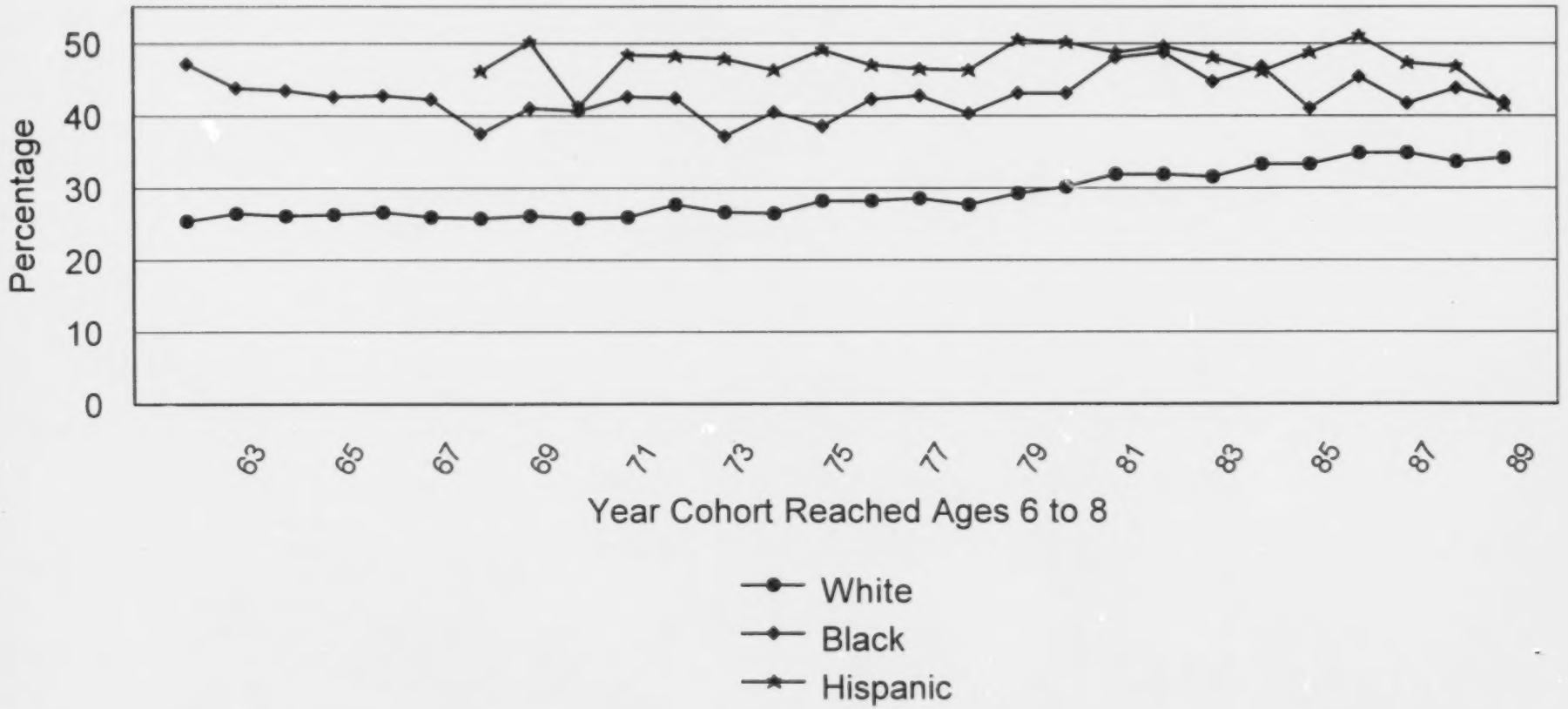
Source: U.S. Bureau of the Census, Historical Statistics,
Table A-3, persons 6 to 17 years old.
Dropouts are included in the series at ages 15 to 17.

Figure 2
Percentage Enrolled Below Modal Grade
at Ages 6 to 8 by Race-Ethnicity and Year



Source: U.S. Bureau of the Census, Historical Statistics, Table A-3, persons 6 to 8.

Figure 3
Percentage Enrolled Below Modal Grade or Dropping Out by Ages 15 to 17
By Year Cohort Reached Ages 6 to 8 by Race-Ethnicity



Source: U.S. Bureau of the Census, Historical Statistics,
Table A-3, persons 15 to 17.

Figure 4a
Enrollment Below Modal Grade Level at Age 6

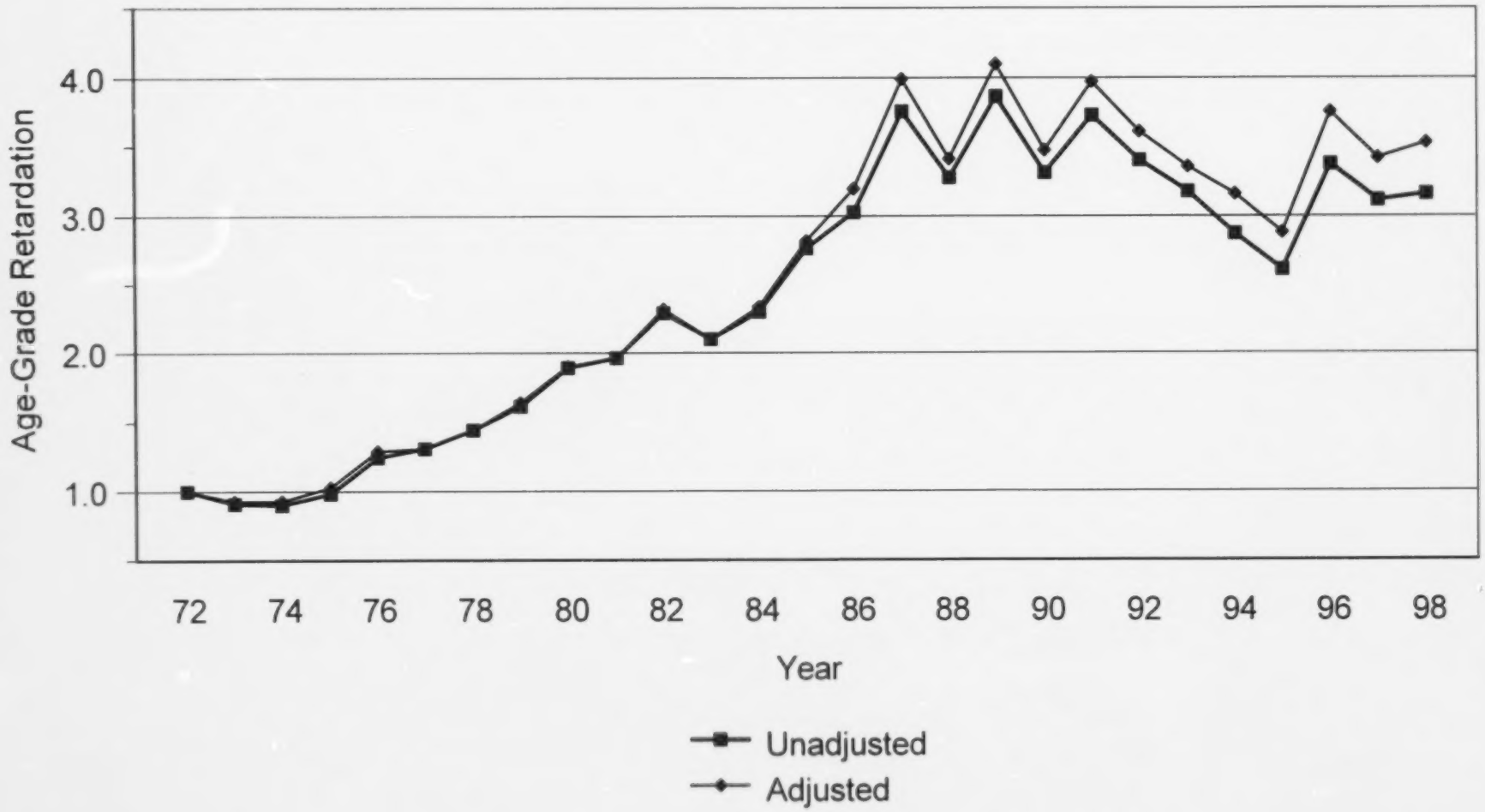


Figure 4b
Enrollment Below Modal Grade Level at Age 9

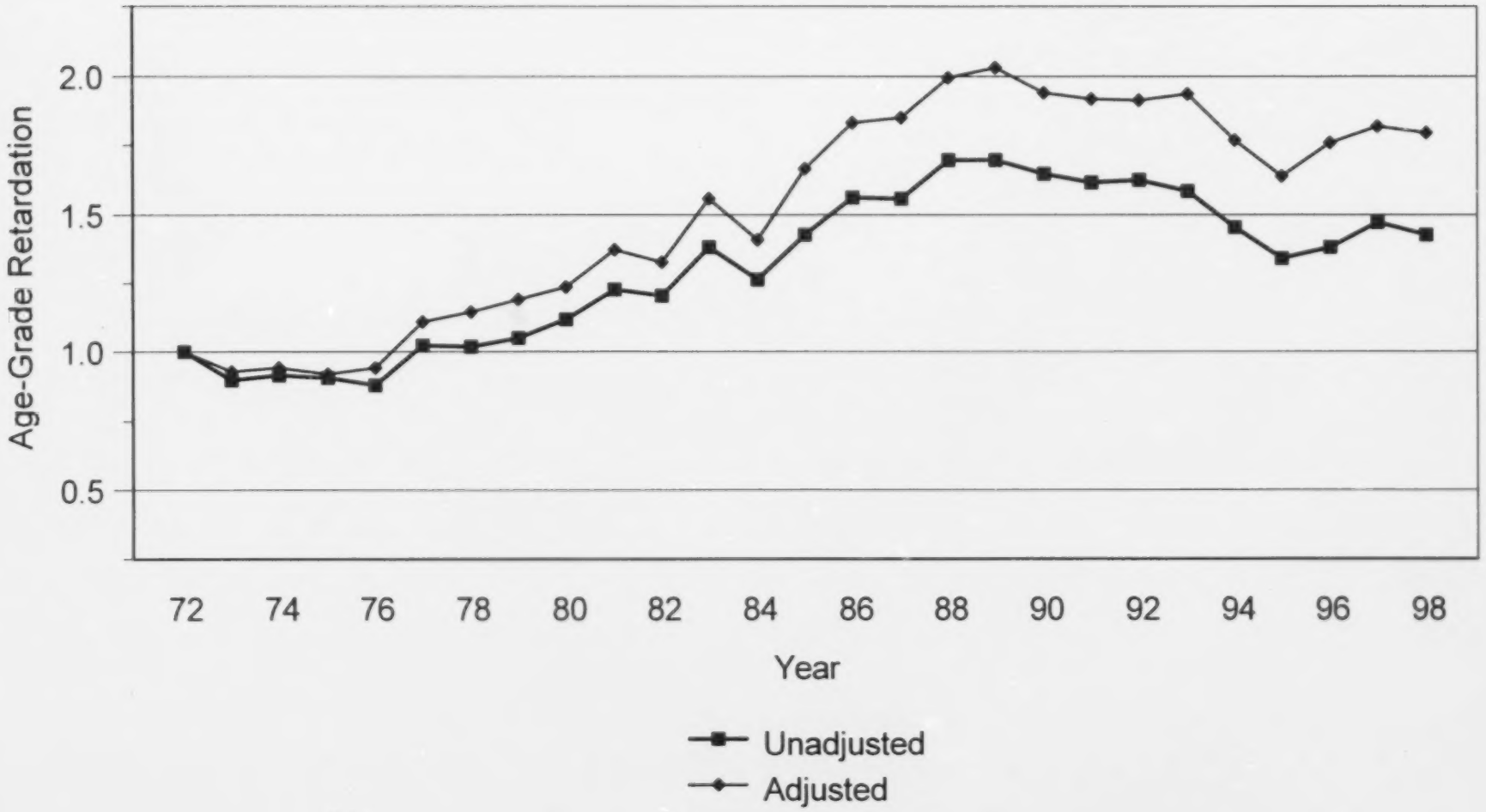


Figure 4c
Enrollment Below Modal Grade Level at Age 12

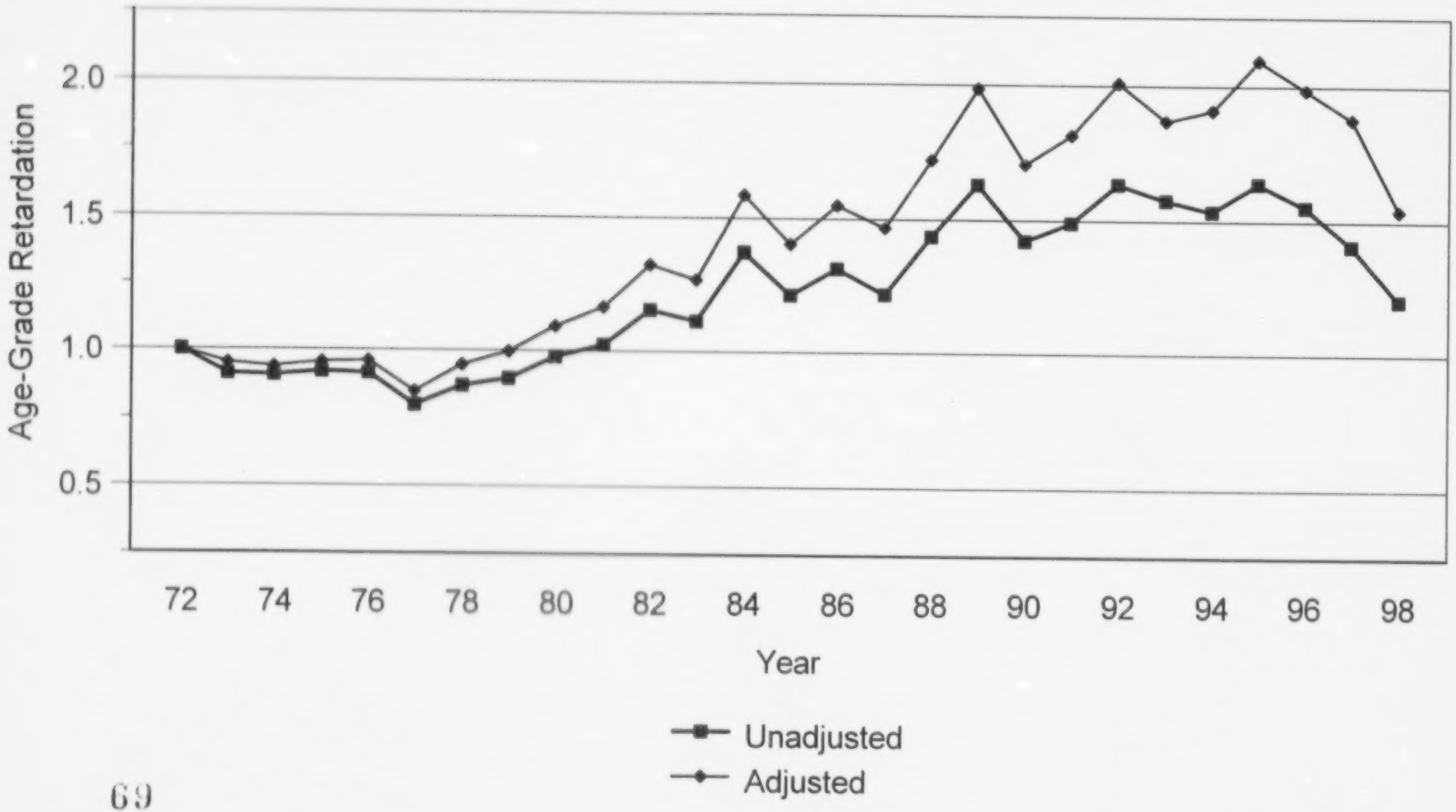


Figure 4d
Enrollment Below Modal Grade Level at Age 15

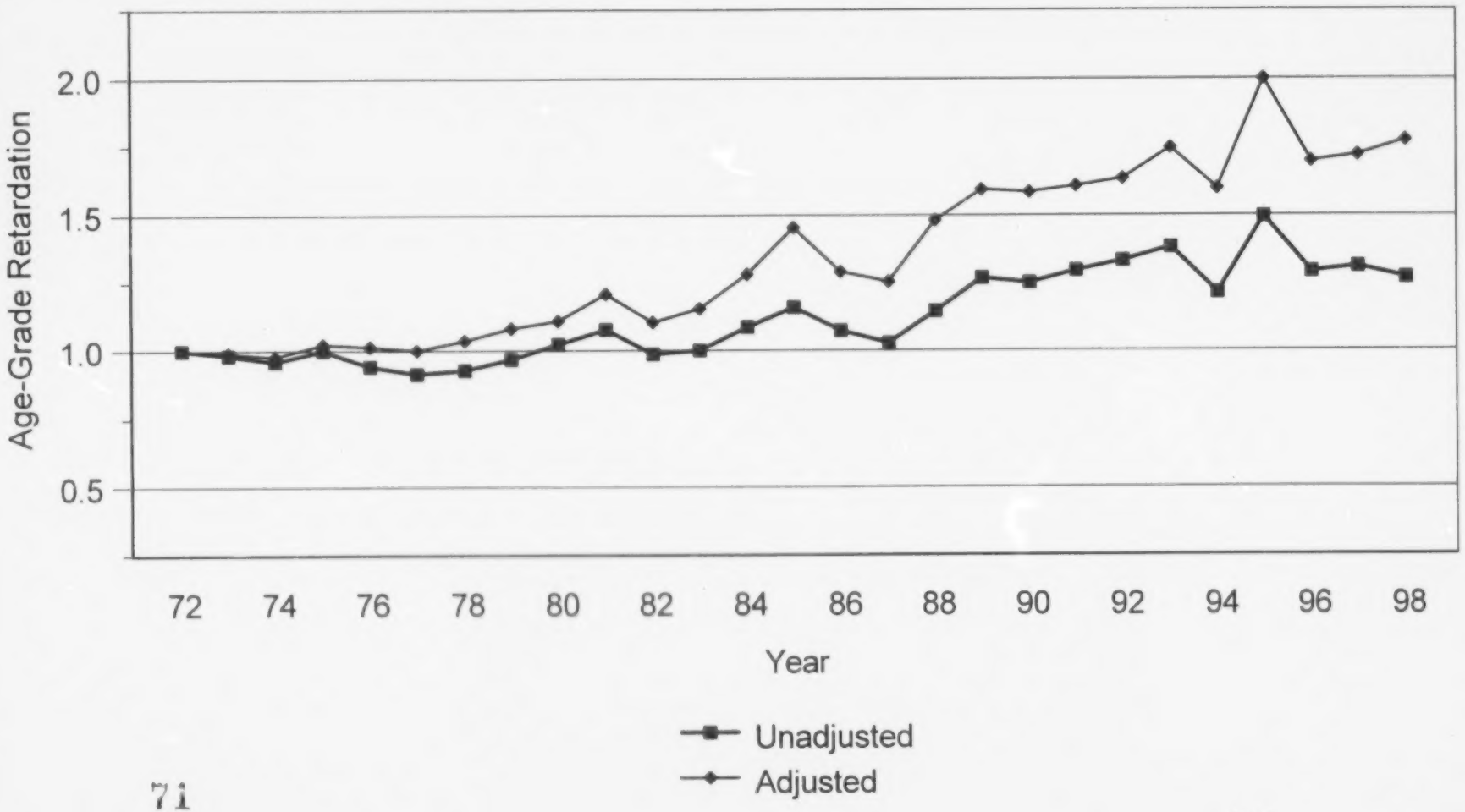


Figure 4e
Enrollment Below Modal Grade Level at Age 17

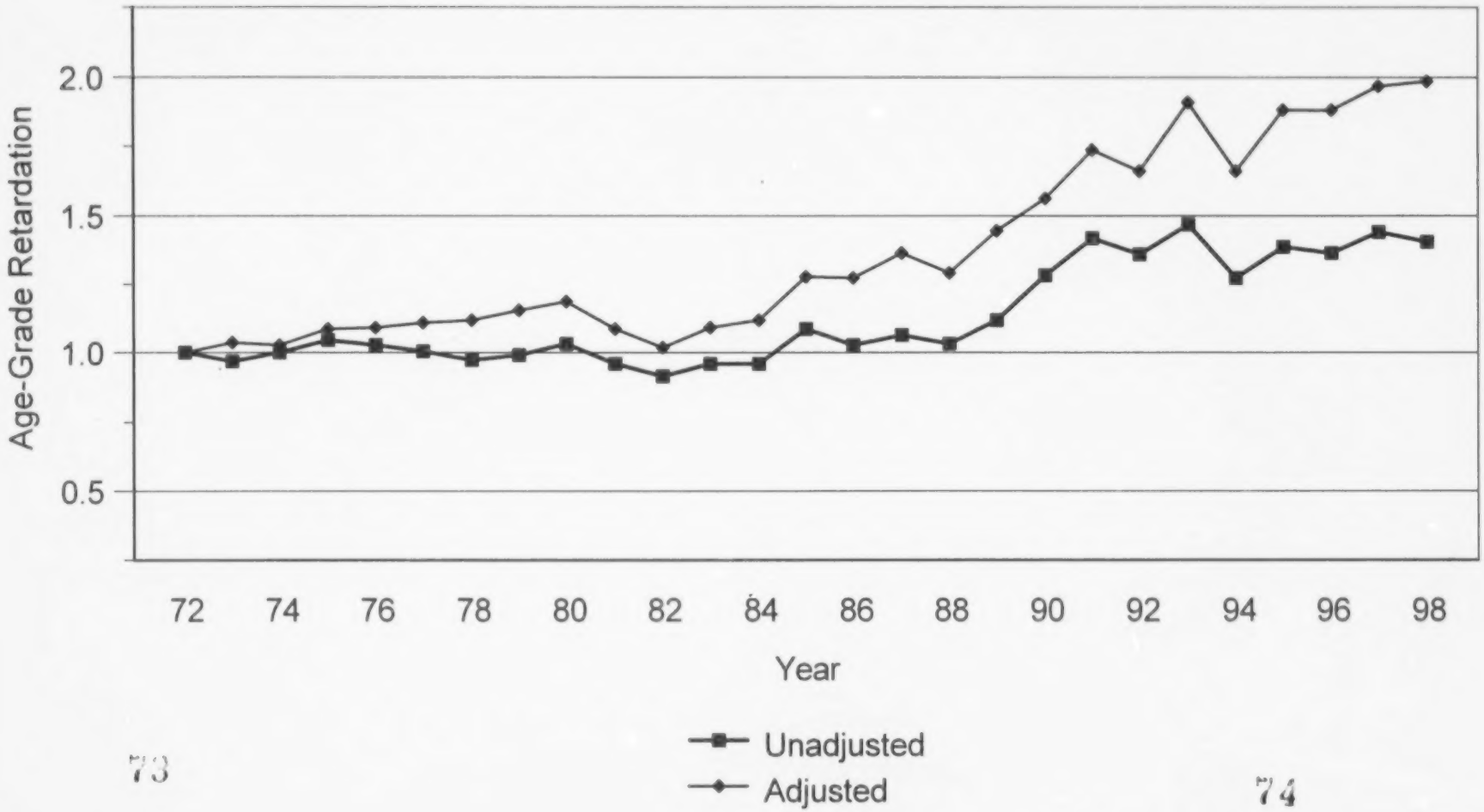
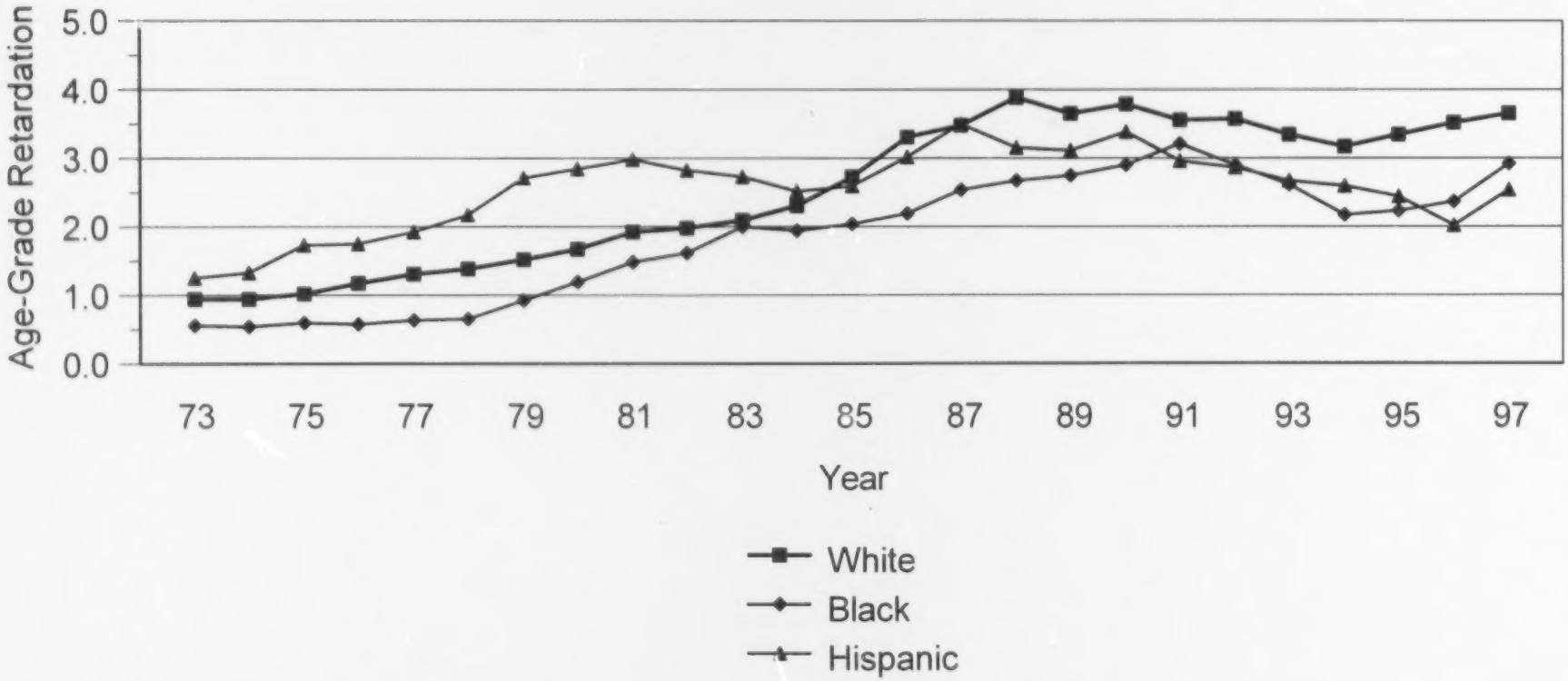
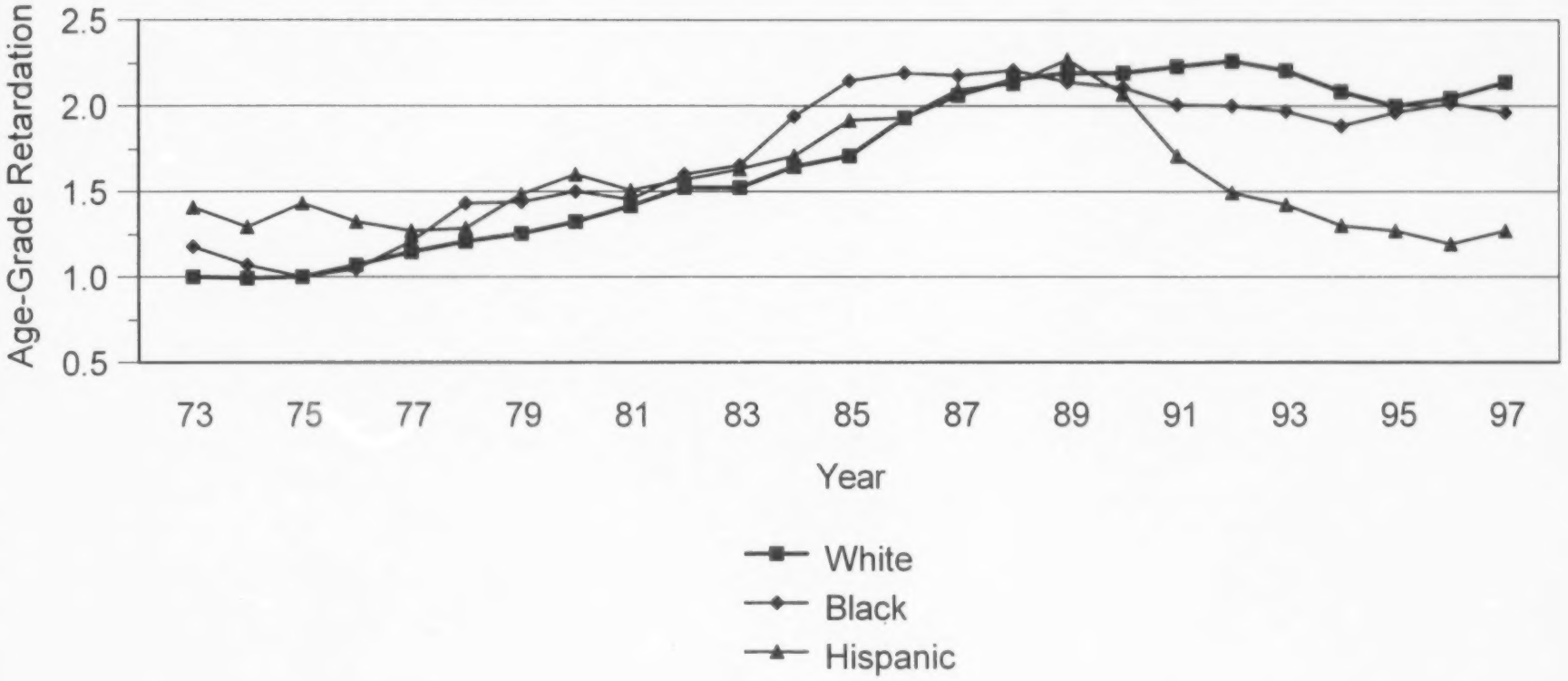


Figure 5a
Trends in Enrollment Below Modal Grade Level at Age 6 by Race-Ethnicity



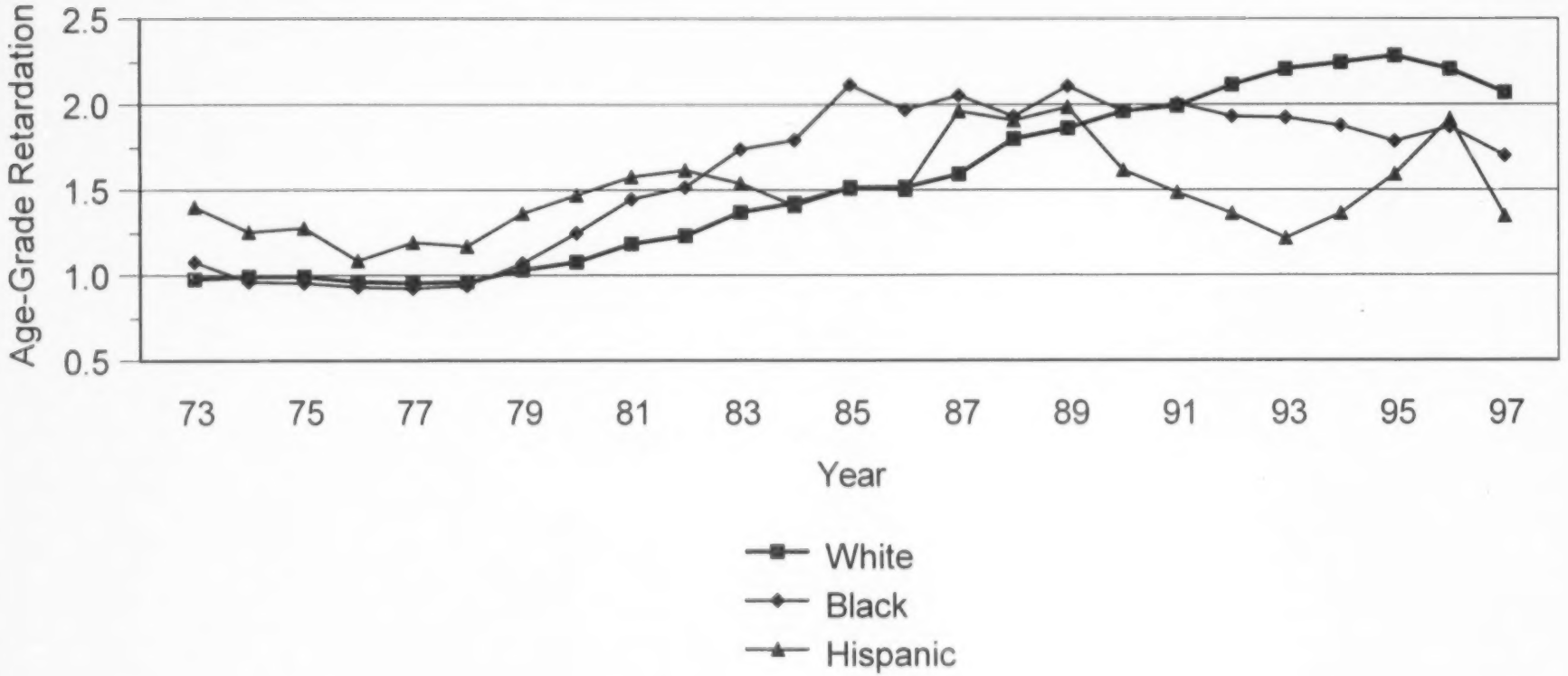
Index value is 1.0 for whites in 1972.
Estimates are 3-year averages net of of geography and social background.

Figure 5b
Trends in Enrollment Below Modal Grade Level
at Age 9 by Race-Ethnicity



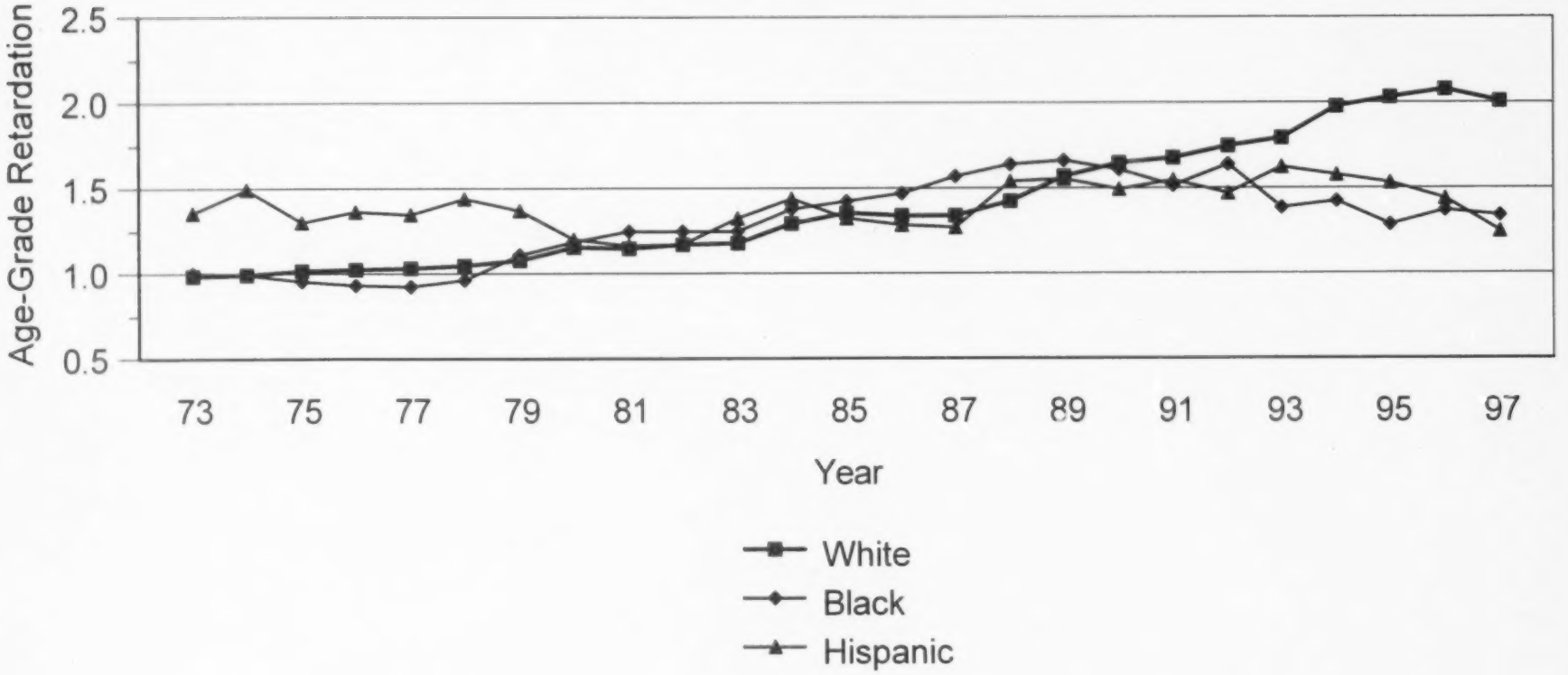
Index value is 1.0 for whites in 1972.
Estimates are 3-year averages net of
of geography and social background.

Figure 5c
Trends in Enrollment Below Modal Grade Level
at Age 12 by Race-Ethnicity



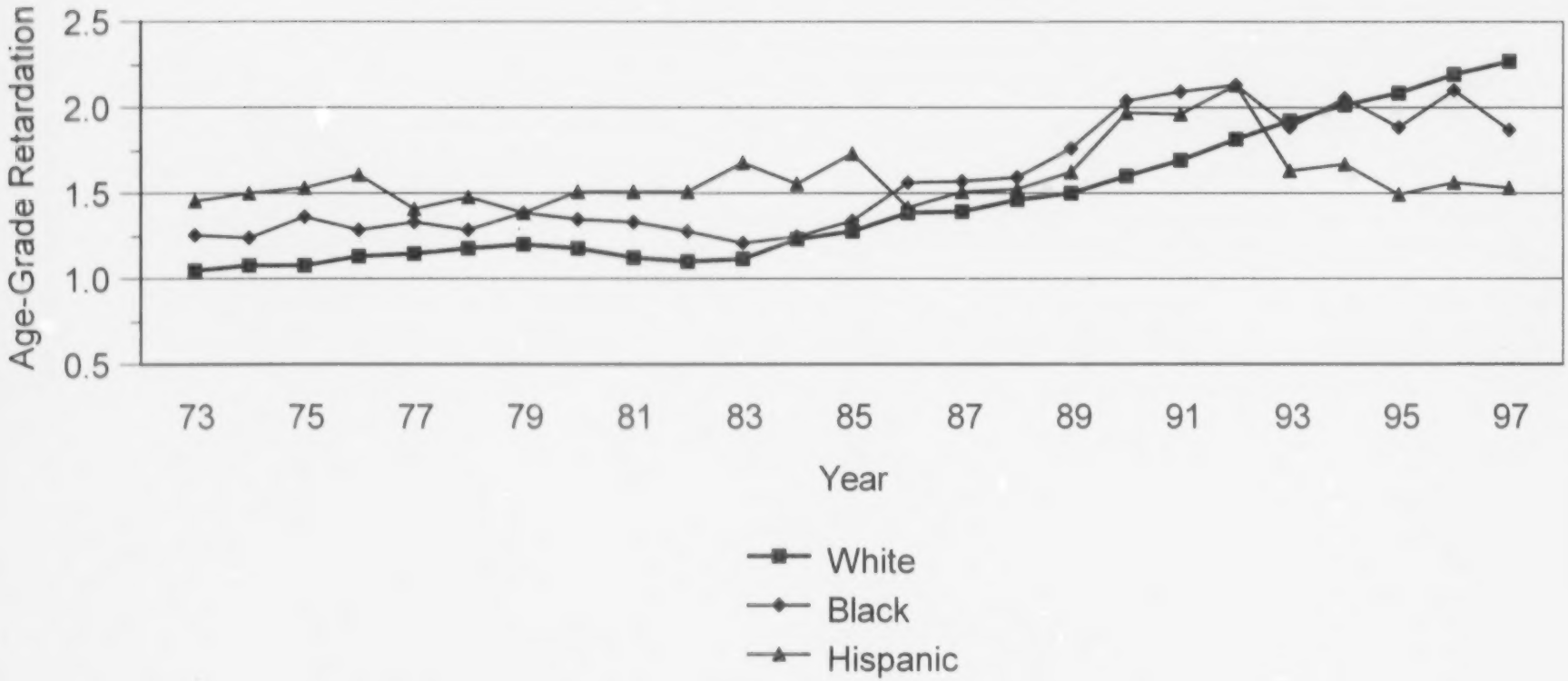
Index value is 1.0 for whites in 1972.
Estimates are 3-year averages net of
of geography and social background.

Figure 5d
Trends in Enrollment Below Modal Grade Level
at Age 15 by Race-Ethnicity



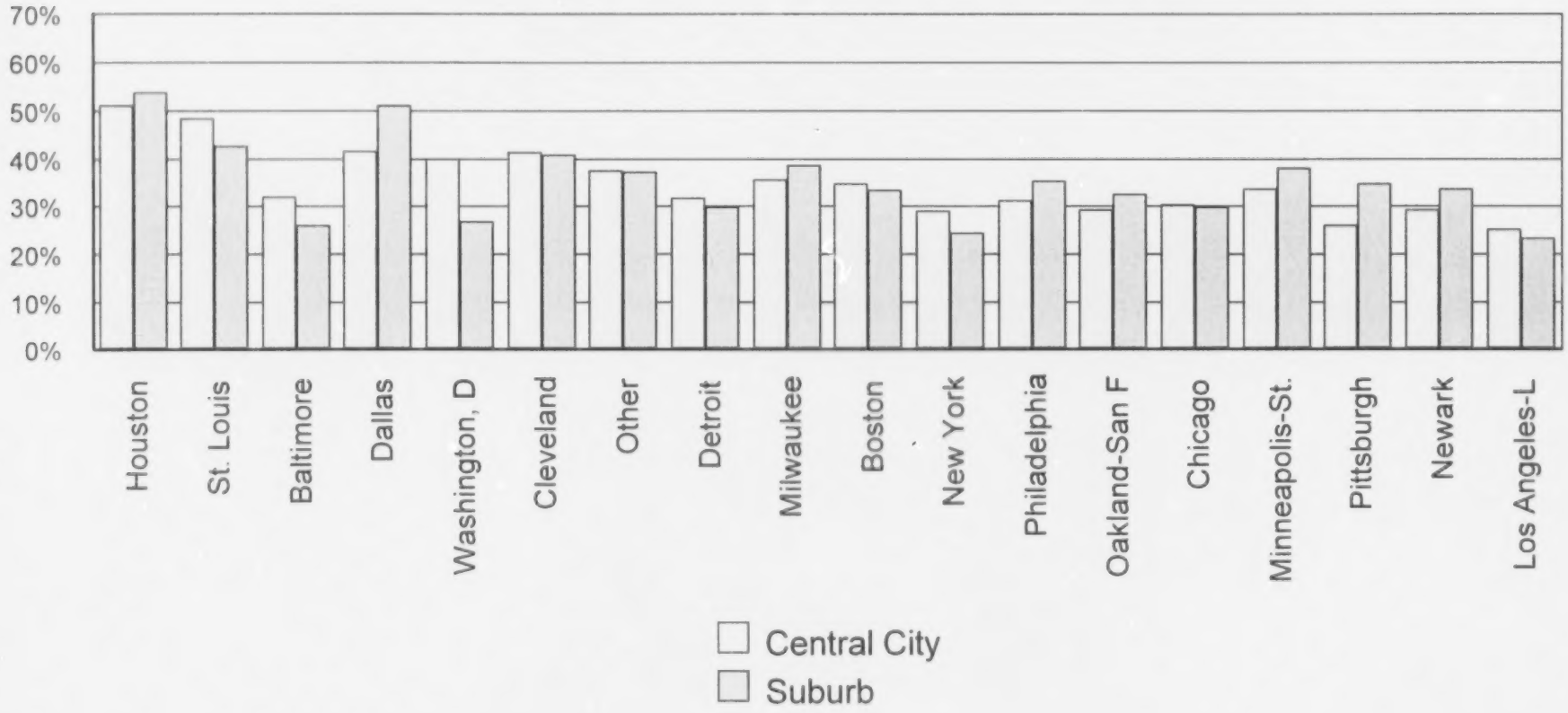
Index value is 1.0 for whites in 1972.
Estimates are 3-year averages net of
of geography and social background.

Figure 5e
Trends in Enrollment Below Modal Grade Level
at Age 17 by Race-Ethnicity



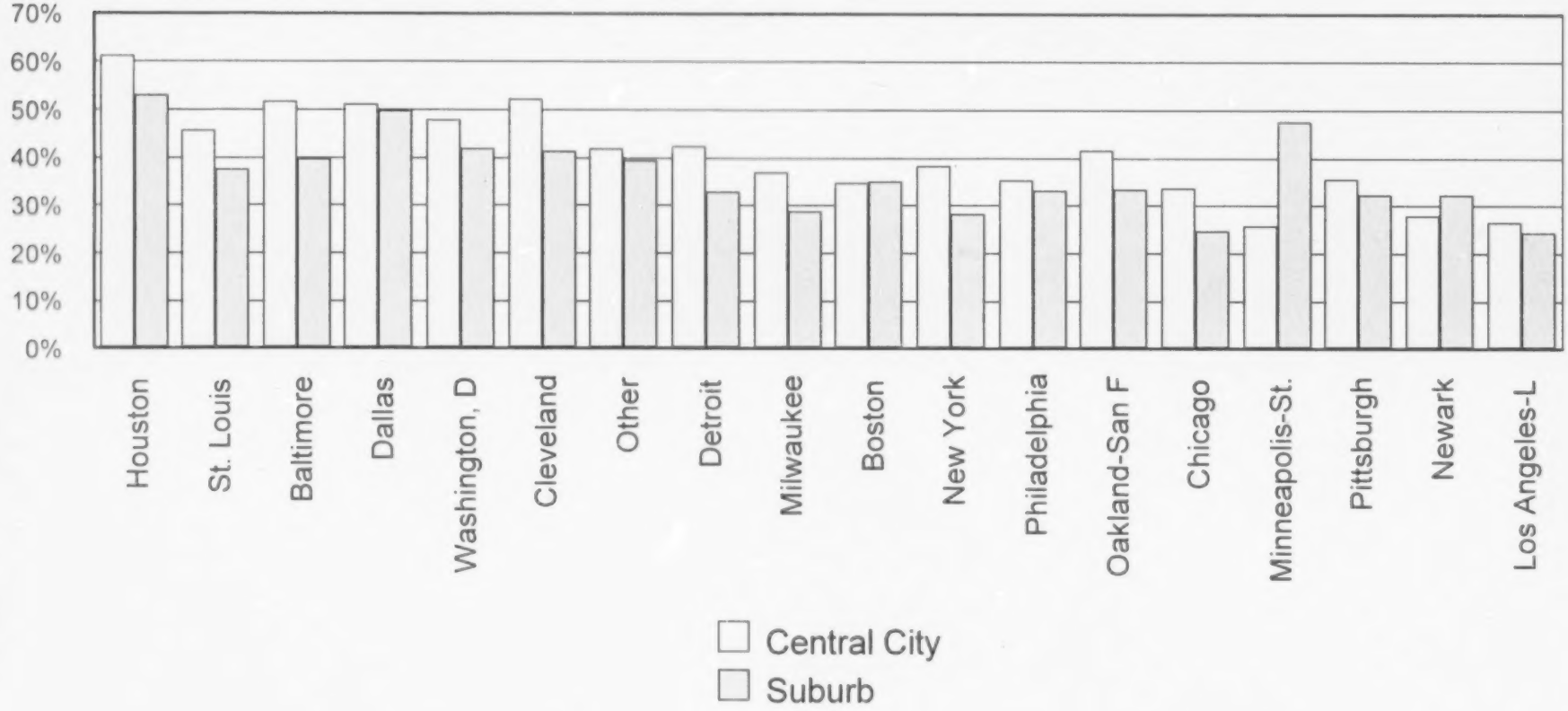
Index value is 1.0 for whites in 1972.
Estimates are 3-year averages net of
of geography and social background.

Figure 6a
Predicted Percentage Below Modal Grade Level at Age 12:
Selected Metropolitan Areas by City/Suburban Status in 1990



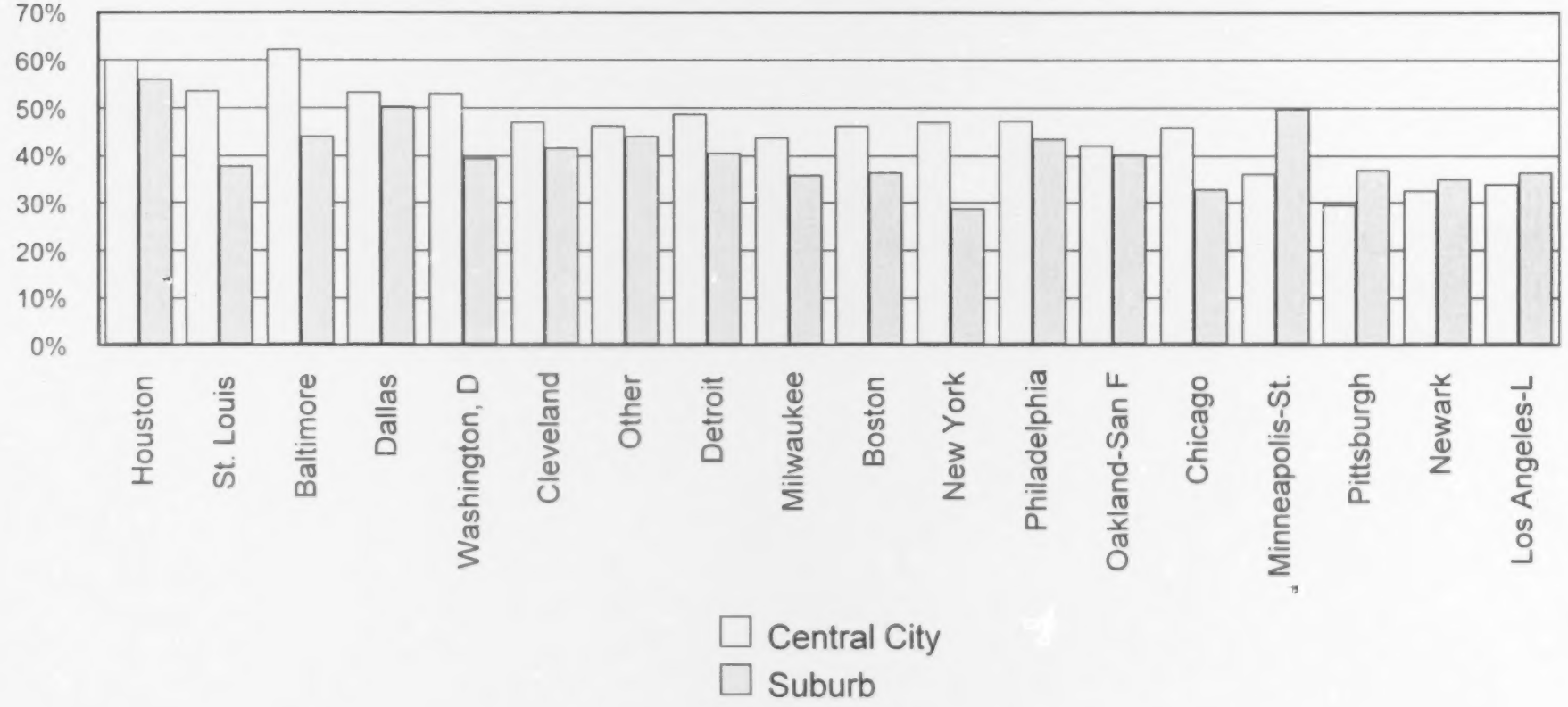
Source: Model-based estimates from the Uniform CPS file. See text for explanation.

Figure 6b
Predicted Percentage Below Modal Grade Level at Age 15:
Selected Metropolitan Areas by City/Suburban Status in 1990



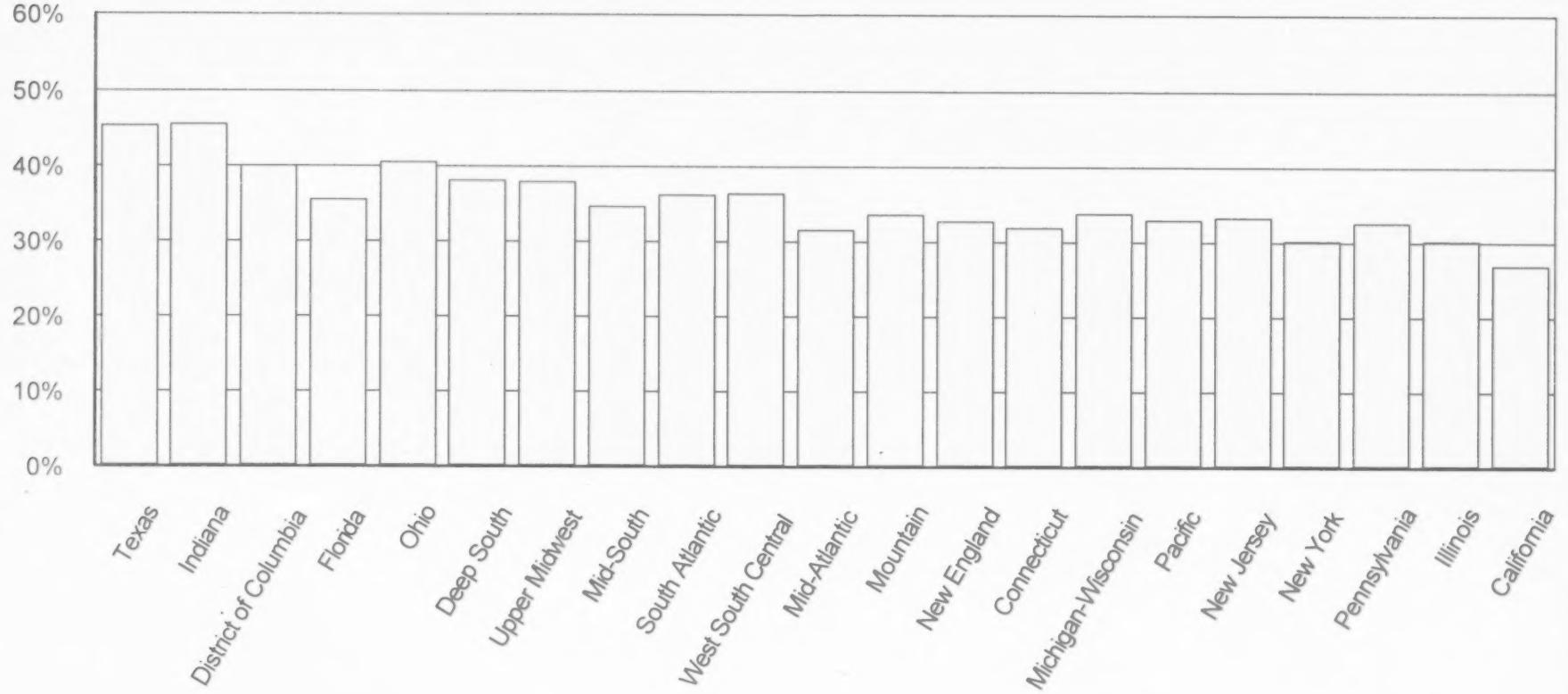
Source: Model-based estimates from the Uniform CPS file. See text for explanation.

Figure 6c
Predicted Percentage Below Modal Grade Level at Age 17:
Selected Metropolitan Areas by City/Suburban Status in 1990



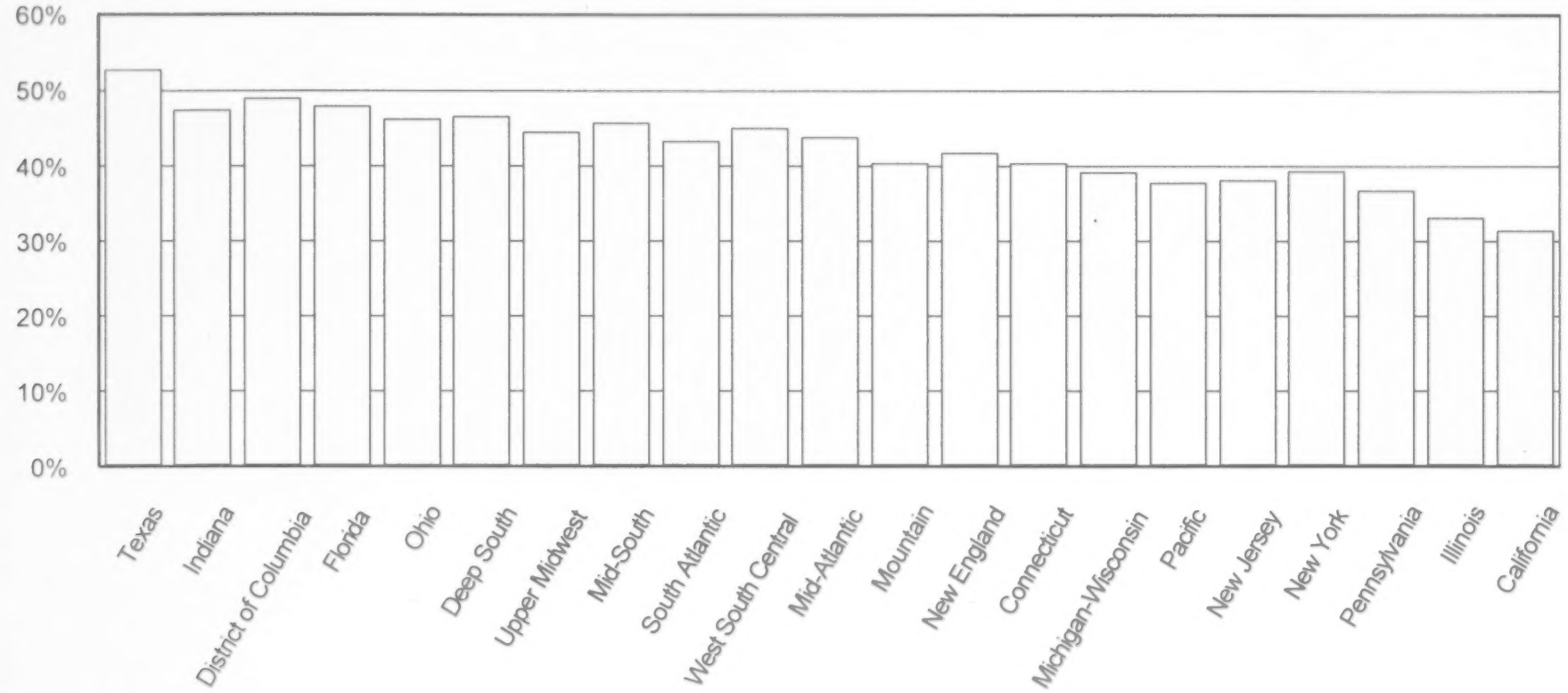
Source: Model-based estimates from the Uniform CPS file. See text for explanation.

Figure 7a
Predicted Percentage Below Modal Grade Level at Age 12:
Selected States and State Groups in 1990



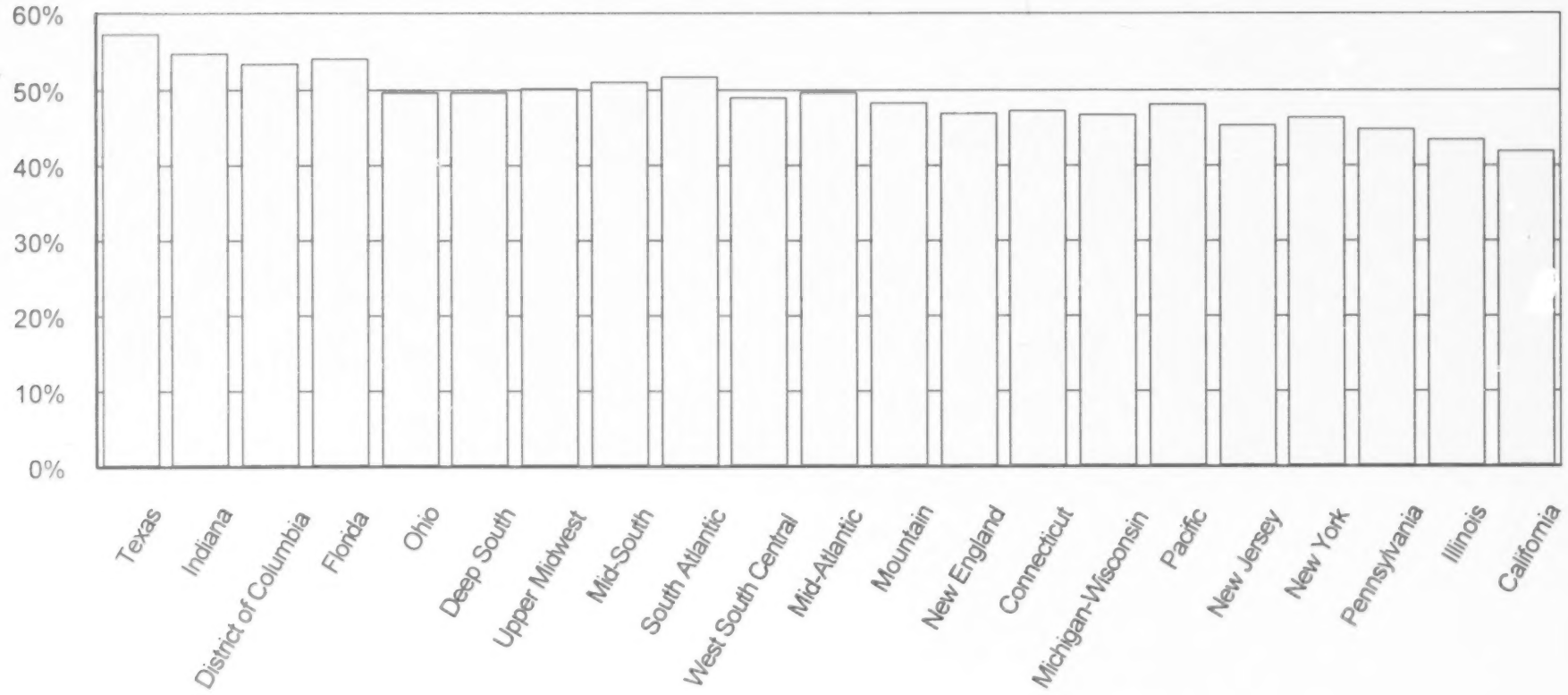
Source: Model-based estimates from the Uniform CPS file. See text for explanation.

Figure 7b
Predicted Percentage Below Modal Grade Level at Age 15:
Selected States and State Groups in 1990



Source: Model-based estimates from the Uniform CPS file. See text for explanation.

Figure 7c
Predicted Percentage Below Modal Grade Level at Age 17:
Selected States and State Groups in 1990



Source: Model-based estimates from the Uniform CPS file. See text for explanation.

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